January 1999
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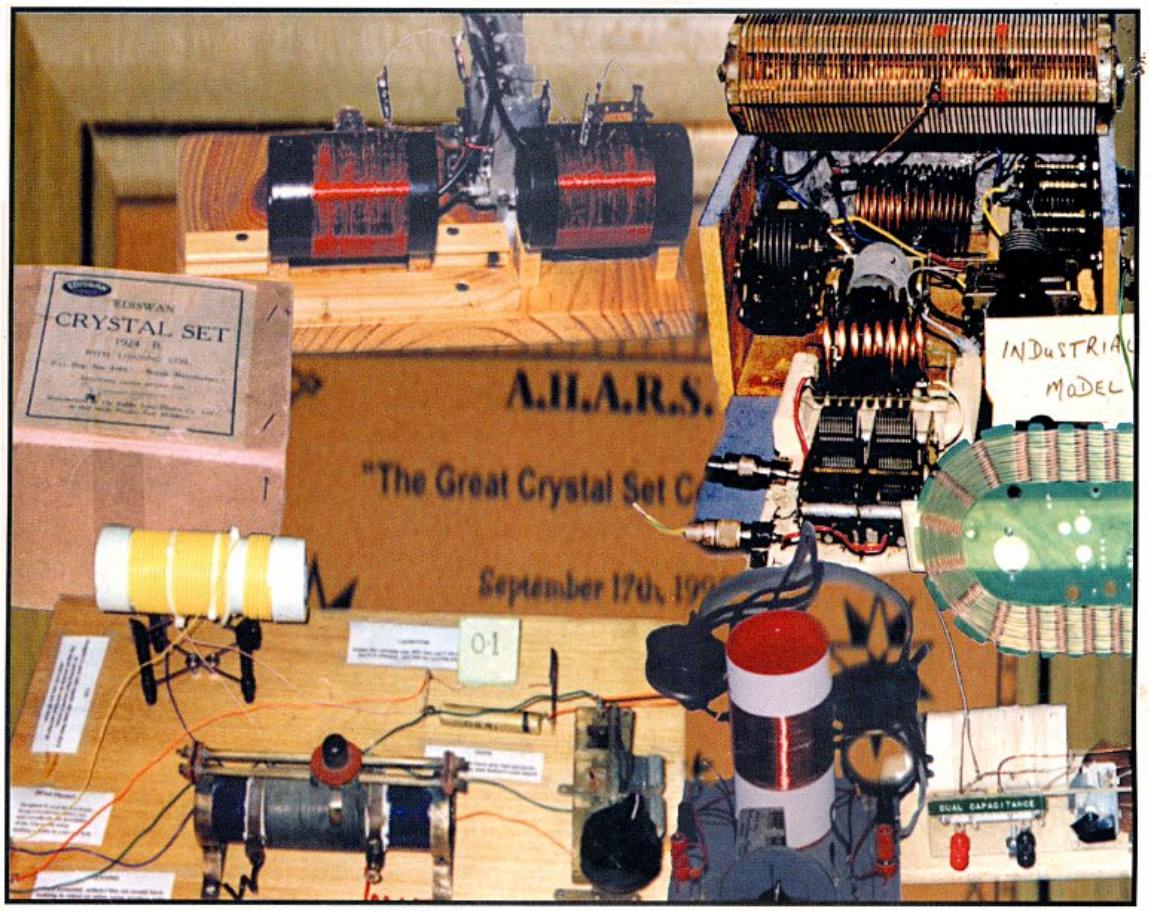
Amateur Radio

Journal of the Wireless Institute of Australia



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Amateur Radio

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This issue was delivered to Australia Post on Thursday Jan. 7 If you are a financial member and have not received your copy by the 15th of the month please check with your local Post Office before contacting the registered office of the WIA.

Technical

General

Columns

Our cover this month

Adelaide Hills Amateur Radio Society— Great Crystal Set Competition

Photos: Christine Taylor VK5CTY. Montage by Bob Harper VK4KNH.

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted, at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published..

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
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Founded 1910

Representing
The Australian Amateur RadioService

Member of the
International Amateur Radio Union

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EDITORS COMMENT

A Few Changes

Introducing Bob Harper

As I summarized last month, that issue was the last to be produced by Bill Roper. This issue is the first to be produced by Bob Harper. "Who is Bob Harper?", I hear you asking. There is a partial answer on page 3 of the December issue, headlined "New Production House for Amateur Radio". I would like to expand on that in the light of evolving activity.

In a circular letter to contributors, Bob introduces himself in some detail as VK4KNH, and refers to his experience in producing the VK4 newsletter "QTC News". He is well equipped for the various electronic communications procedures involved in AR production, not only from the hardware viewpoint but also experience in their use.

Proceeding electronically

This has now become vital to continuation of the job, because whereas previously all production, typesetting and printing was located in Melbourne, Bob's production facilities are in Brisbane. We are still developing procedures for getting text and other information backwards and forwards in minimal time and at minimal expense, so you will no doubt find a few differences in this issue as the result. Bear with us, we're learning fast!

"Every member get a member"

The need for different and less expensive production of our magazine has been forced upon us by the economic pressures which I mentioned in the November editorial. Basically, we need more members. How that can be achieved is a problem for all of us, not just our council and directors. "Every member get a member" is a slogan I seem to have heard many years ago. It is even more urgent now than ever before!

Bill Rice VK3ABP Editor

ar

Comment

Federal President, Peter Naish VK2BPN.

Two critical discussions on WIA's future

Two important events took place during December. These were a meeting of WIA Federal Council and a meeting between the WIA ACA Liaison Committee and the ACA.

Domestic strategic matters

The Federal Council met on December 5th via a national teleconference to discuss a number of strategic matters including the draft business plan prepared by the Directors.

Each WIA Division was represented either by its Federal Councillor or an Alternate Councillor. The business plan was generally well received although Councillors hotly debated some matters.

The principal theme of the plan is the need to restore strength to WIA Federal by winning back those radio amateurs who have for whatever reason let their membership lapse over the past five years.

Recent cost reductions in the operation of WIA Federal should ensure the immediate financial health of the organisation, but in the longer term increased membership levels are essential if we are to have the finances to support the services expected by members. It is the classic situation - members expect a high level of benefits from their membership but this can only be provided if the level of membership is adequate to fund them.

The business plan addresses this issue although there does not appear to be a single reason for declining membership nor an obvious solution to it. However, it has promoted significant positive ideas which the Directors and Council will continue to develop.

A number of other matters were discussed by Council including ways of supporting various special events to be held in 2000, including a proposal to hold the next Convention of IARU Region 3 in Australia in that year. An upgrade to the WIA Federal web page on the Internet was proposed because this is a valuable public relations asset providing as it does a universally accessible window into the WIA. It was agreed that the Annual General Meeting of WIA Federal would be held over the weekend of 1/2 May 1999.

WIA's place in the airwaves

The WIA ACA Liaison Committee met with the ACA in Canberra on 9th December last. A full day was spent discussing a wide range of issues concerning the Amateur Radio Service in Australia. These included the 80 metre DX window, a possible LF amateur band at around 137 kHz, the effect on the amateur radio licence of the EMR legislation due to come into effect on 1st January 2000, the effect on our secondary usage of those bands subjected to Spectrum Licensing by the ACA, and several other key licensing matters.

The WIA sought a clarification on the ACA 's intentions in regard to the future of the examination service the operation of which is currently performed by the WIA.

Time ran out before several items could be fully covered and these will have to be part of the next meeting with the ACA scheduled for April this year.

Fuller reports on both the Council meeting and that with the ACA will be prepared for publication in forthcoming issue of *Amateur Radio*.

Peter Naish, VK2BPN, WIA Federal President.

ar

WIA News

WIA News Prepared, researched and compiled by

David Thompson VK2NH

Federal Public Relations Coordinator.

International Travel Host Coordinator

John Miller has been appointed International Travel Host Coordinator on the Federal team. Born in the UK, John was first licensed in 1968 as G3WIT. In 1971 he came to Australia with his parents where he took up the callsign VK3BFM, later VK3DJM, which included some of his initials.

The first job John had was as a trainee radio operator for the British government and as he says "I failed to get my cw speed up fast enough and so was retrenched". He left the RAF on medical grounds and has been employed since as an electronics technician by various firms, both in the UK and here. John's present employers are McVan Instruments (also known as BWD) where he has worked for 16 years.

Licensed continually since 1968, John has used the International Travel Host Exchange Scheme (ITHE), while travelling to the UK and, after first hearing about it in an article in *Amateur Radio*, immediately signed up. He is not able to provide accommodation, but is currently helping a Canadian couple who contacted him, via the Internet, from the ARRL listing.

John Miller VK3DJM may be contacted at work, from 0730 to 1600 local, on (03) 9582 7316 and has a voice mail box on his home phone (03) 9766 0741.

John's packet address is:

VK3DJM@VK3KSD.#MEL.VIC.AUS.OC and e-mail:

e-mail :- jayem@alphalink.com.au

Keen WIA Membership in VK7

Tasmania has the highest percentage of Amateurs as WIA members. It has been calculated at 34 per cent, but that figure is bolstered by the fact that Tasmania has the lowest number of amateurs except for the Australian Capital Territory(VK1).

VK7 President Ron Churcher has called on his division to have a 50% membership in the next 6 months, and has reminded them that if every present member recruited just one new member VK7 would be at 68%.

Illawarra Amateur Radio Society has Call for 50 Years

The Illawarra Amateur Radio Society in Wollongong, NSW has recently noted that the club's callsign VK2AMW is 50 years old. The callsign was issued to the then Wollongong Radio Club on 3 December 1948.

Phil, VK2TPH, Publicity Officer, says that, to the best of the club's knowledge, the sign never lapsed from its ownership, even when the name was changed.

To celebrate, members activated the callsign VK2AMW on Saturday 5 December, 1998 and if you did work it, your special memorial QSL card is available by sending a Stamped Self Addressed Envelope to:

QSL Manager I.A.R.S. inc,
PO BOX 1838, Wollongong, N.S.W. 2500

WIA News ►

WIA News

Continues

APRS Alive and Well

Despite reports that the Automatic Position Reporting System (APRS), has been very slow to take off in VK, Darryl Smith VK2TDS tells us that the mode is alive and well and gaining momentum but has indicated that details of 'who is doing what and when' is the main issue determining the use of the digital facility.

Darryl says the main challenge is to now get all the APRS groups talking to one another. This can be done by having their details on a central register which he is coordinating. To let people know the details of your APRS operations, or get further information, contact Darryl on email: vk2tds@ozemail.com.au .

Packet Bulletin boards which wish to transmit APRS beacons only need to add their grid square locator in square brackets at the beginning of their beacon text. An example of this would be [QF56] VK2TDS Beacon Text or [QF56nx] VK2TDS Beacon Text.

The latest version of WinAPRS now accepts raster (scanned) maps. WinAPRS is available at the web site: http://aprs.rutgers.edu. or from the packet group APRA. Even after a plea by the main players in VK2, few packet bulletin boards have added their maidenhead locator grid squares for beaconing purposes.

In the UK, G0TRT has put up WinAPRS maps for the whole of UK on his website. DOS maps for the country are being worked on and should be available when you receive this edition of AR. G0TRT's webpage locator is http://www.bigfoot.com/~Hammie. Thanks to Grahame VK4BB for that address.

Via ITU

World Amateur Radio Day

World Amateur Radio Day will be celebrated in 1999 on Saturday 18 September, however this is the last time that World Amateur Radio Day will take place in September. From the year 2000, the day will be marked on the anniversary of the IARU in April.

Via VK7 & QNews

TMSAT-1 (TO-31) Now Available for General Amateur Use

The satellite opened for business the weekend of November 28. The move allows Amateur Radio operators to use the store-and-forward communications transponder on the spacecraft and to download the high-resolution multi-spectral Earth images taken by the satellite.

Ground station op Chris Jackson, G7UPN/ZL2TPO expressed the hope that ground operators will take advantage of downloading the high resolution multispectral images available from TO-31 "and keep other traffic to a minimum." Due to current limitations with on-board memory, images will only be available on the satellite for a couple of days after they are taken. If other files (especially large files) are uploaded to the satellite, this will ultimately increase the amount of time taken to download images and they may therefore be deleted before they are completed.

Jackson says transmitter problems continue, however, and the downlink is not currently operating over most areas. Amateurs in Europe and Southeast Asia will find the downlink on most of the time, and it will remain on for between 15 and 30 minutes, depending on the operation of the transmitter. Work and testing continue to improve this situation.

During some of these tests, access may be limited to command stations only. Jackson requests that hams not attempt to access the satellite if the BBS indicates it is "SHUT."

The TO-31 downlink frequency is 436.925 MHz, 9600 baud FSK. The uplink frequency is 145.925 MHz, 9600 baud FSK. The BBS call sign is TMSAT1-12; the broadcast call sign is TMSAT1-11.

Chris Jackson, G7UPN/ZL2TPO
via AMSAT News Service

One *New* Member

That's all it takes to make the WIA strong — if every member signs up just one new member

NASA Space Weather Bureau

For an interesting view of what is above us, N7SO in the US has written to the ARRL to remind amateurs of the NASA Space Weather Bureau Web site at: www.spaceweather.com sponsored by Marshall Space Sciences Lab. The site contains a lot of data on current conditions as well as a great 10-day animation of the sun.

This is a very interesting site to pay a visit and at the time of writing, the site contained images of the aurora updated every seven minutes, as well as information on solar flares.

Via ARRL Newsletter Vol 17 No 48

FCC Issues Warning on Tower Lighting:

The Federal Communications Commission has warned owners of antenna structures to comply strictly with FCC antenna tower lighting and marking rules.

This followed a recent nighttime incident in Texas where a helicopter ambulance nearly hit an unlighted radio tower. The FCC notes that tenant licensees, such as repeater owners, are secondarily responsible for tower lighting.

The FCC held a public forum Dec. 7, 2-4:30 PM ET about Y2K impact on tower lighting and lighting equipment. Forum materials will be posted to the FCC Y2K site.

Via ITU

World Telecommunications Day

The ITU has dedicated the 1999 World Telecommunications Day to be held on 17 May, 1999 to focus on the importance of doing business by electronics(E-commerce).

In Amateur Radio terms, the focus is on packet radio and digital satellites and the contribution the Amateur and Amateur Satellite Services have made to the development of digital communications which forms the backbone of E-commerce.

Item Via the FCC

56K Modem Standard Continues to Break new Ground

At the recent meeting of Study Group 16 in Geneva, the multimedia group of the Telecommunications Standardization Sector of the International Telecommunication Union, approval of the new V.90 (56 K) modem standard was unanimously completed by the Study Group.

At the same meeting, the approval process was initiated for a new all-digital version of the same technology to be known as V.91.

The ITU, a specialized agency of the United Nations, coordinates global communications standards. Study Group 16 of the ITU Telecommunication Standardization Sector (ITU-T) where the work on modem standards is carried out, is responsible for the development of standards for multimedia systems.

The new V.90 Recommendation, is already finding wide deployment for Internet and on-line service access. V.90 modems are designed for use on normal telephone lines where the connections are analogue at the customers premises and digital at the service providers premises.

Unlike other modem standards, V.90 modems take advantage of the characteristics of the digital to analogue converters present in the telephone network to achieve hitherto unobtainable high rates of transmission.

Download speeds of up to 56,000 bits per second (bit/s) are possible, depending on telephone line conditions, with upload speeds of up to 33,600 bit/s.

Manufacturers formerly producing modems based on proprietary schemes have already largely migrated to the new standard. It is estimated that over 20 million V.90 modems have been supplied since the standard was "determined" for approval in February last year.

According to industry analysts, the V.90 Recommendation is expected to boost modem sales significantly. Point-Topic, a market researcher, estimates revenue from 56kbit/s modems will rise to $4.3 billion in the year 2000 from $600 million in 1997.

Work began on the development of V.90 (previously referred to as V.pcm) in the ITU-T in March 1997 and, following agreement on all substantive technical issues, the first stage of approval took place in February of this year.

With final approval now granted the new recommendation has been completed in record time.

The V.91, all-digital extension to V.90, allows modem signals to be transmitted through all-digital telephone connections which are configured for speech rather than data signals.

Such connections, which terminate digitally at both the customer's and service provider's premises, have hitherto only been able to achieve data rates of 33,600 bit/s, however the use of V.91 modems will allow data to be transmitted on these lines at close to 64,000 bit/s.

The standard is expected to be particularly useful on ISDN connections where a data bearer channel is not available or cannot be guaranteed.

New Kenwood Digital Handheld

Although this news section is not normally the place for product reviews, it is considered that this item will be of interest to many amateurs, especially those using the digital modes.

Kenwood has just released a handheld called TH-D7A with capabilities exceeding that of most home packet stations. Big statement, but the radio as well as being a dualband VHF/UHF handheld, also includes 1200 and 9600 baud modems and TNC (all built-in). This allows full duplex packet operation.

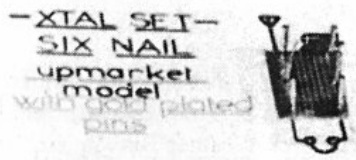
Also there is an intelligent control panel which can be used to send packet messages to other stations. The radio is targeted at the APRS and satellite communities. In the APRS mode, the handheld plugs in to a GPS receiver, beaconing APRS positions and displaying the position of other APRS stations directly on the GPS receiver.

With the addition of a three element yagi, the station works well with the digital PacSat allowing portable satellite operation.

Although this radio has been released in the UK and USA, there has been no release date indicated yet for Australia. The US price of the TH-D7A is $U469.00. Thanks to Darryl VK2TDS for details. **ar**

THE GREAT CRYSTAL SET COMPETITION

by Christine Taylor, VK5CTY
16 Fairmont Ave Black Forest
SA 5035



The smallest set present.

THE GREAT CRYSTAL SET Competition held by the Adelaide Hills Amateur Radio Society on Thursday 18th Sept 1998 was an amazing success.

The competition was suggested by Jeff VK5MFR and presented to members about six months earlier.

The committee thought there might be as many as ten or twelve sets submitted, but on the night there were 33 entries, from 16 members. Jeff himself had submitted seven entries!

Five prizes were awarded. The certificates and the accompanying plaques were designed and produced by Jeff VK5MFR - each a gem on its own. With each certificate there was a wooden plaque on which an appropriate item was mounted.

For the best construction there was a hammer; for the set with the best selectivity, a pair of scissors; for the most authentic, a crystal of galena and a cat's whisker. The set with the best performance had a tiny toy antique radio on its plaque and for the smallest there was a magnifying glass.

Two leading members of the Historical Radio Society, Peter Holland and Alan Taylor judged the sets.

Before naming the winners, the judges offered to present all the prizes to the owner of the genuine antique *Ediswan Crystal Set*, still in its original box, if he'd offer the antique as a bribe.

After all, the entry form did ask if you were prepared to offer a bribe and if so, how much? They were turned down.

Each set was tested both for selectivity and signal strength, and assessed for detail.

As an aerial, one end of a long wire was lobbed high into a convenient tree and the free end fed in through the window. Another wire was tied to a water tap to act as an earth. The output of each set was fed through an amplifier. (One set was supplied with a loudspeaker!).

Geoff Bridgland VK5NOZ was presented with the award for the Best Constructed. His set included a tuning system with a vernier drive.

Bryan VK5NOS' "Ettamogah Pub Set" was judged to be the Most Original. The enormous coil, sitting at an angle to match the famous pub, actually belongs to his mobile antenna, but he didn't tell where the very large stump came from.

Jeff, VK5MFR, won the award for the set with the best selectivity. The set had an original style flat coil on an elegant former. The judges found this a very difficult class to judge as the quality of many of the sets was very high.

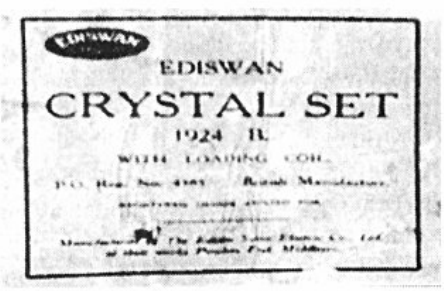
Jim VK5XJT won two prizes, one for the smallest, with a working crystal set under 10cm long, and one for the best performance overall. Although Jim had not achieved the Q of 400 he was aiming for, he did finish up with a Q of about 250. The latter set could almost have won the prize for the largest set as well. It had a loop aerial almost a metre in diameter.

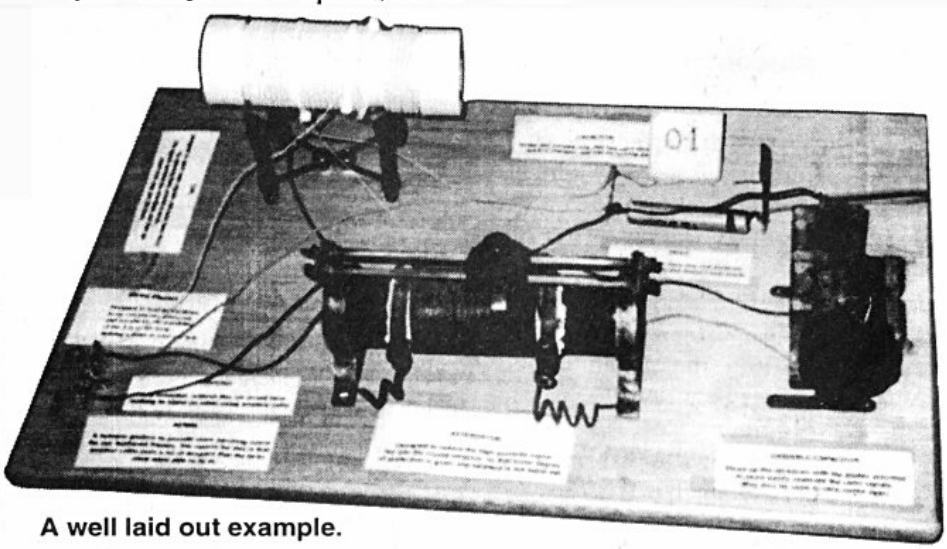
A number of other sets had superfluous items such as heat sinks, fuses or enough coils to loop around the world!

Some of the sets were inductance tuned; some had dual capacitors, while others had loop tuning. The simplest set; the Six-Pin Set (with gold plated nails) submitted by Ted VK5KBM, was a non-tunable, one component unit.

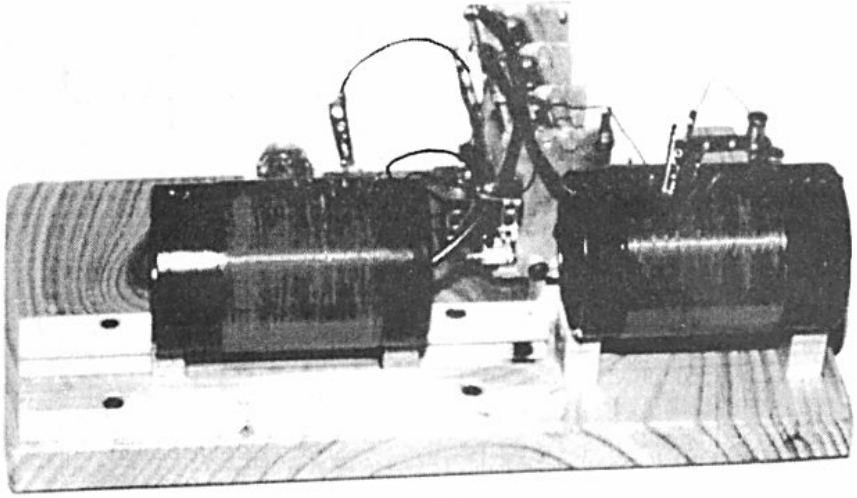
Some of the sets came with a circuit diagram, and some were elegantly labelled.

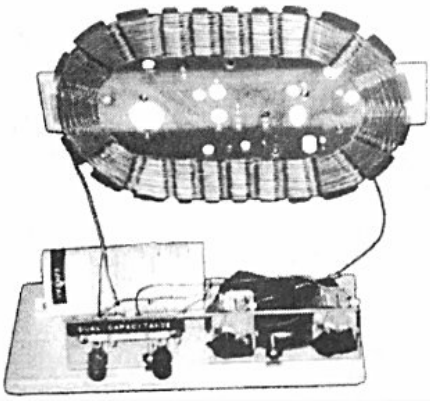
There was a Utility model and an Industrial model (with an enormous chunk of glass as a pseudo crystal). One was made in a plastic slide case, and came complete with earphones (vintage models, of course). Components were sometimes crowded together and at other times they were mounted on a display board.





A well laid out example.





The set with the best selectivity, by Jeff VK5MFR. Note the flat coil.

One that produced more than usual interest was the "Two Can" model, demonstrating that amateurs often have more than one interest. There were almost as many different types of crystal set as there were different circuits. Lots of research had been done and many old memories revived.

The age of the entrants varied from a lad of six or seven to one "older than Methuselah". One or two of the entrants had had years of experience in the most modern electronic techniques. Others are just beginning their life in radio. All of them had to go back to the most basic ideas and methods before they could even start to build a crystal set.

In the weeks leading up the "Night of the Crystal Sets" many and varied were the claims made on air for some of the sets. One entrant said "his neighbours were complaining about the noise from his set". Another claimed to have "blown the cone out of his loudspeaker". Another claimed to have heard Spain and Germany on his set, and yet another entrant claimed to have had to install high power diodes to cope with the signal strength.

Some of the members said they discovered what components they had only heard of before, looked like - and what they could do! Many times people commented that they had not previously realised how many different types of circuits had been used for crystal sets and that each had their own virtues. Quite a few members submitted several sets, all working on different principles, partly to see how they compared.

News of the contest has spread far and wide both here and interstate. Let's hope that this idea is taken-up by other clubs. I'm sure they too would find that a lot of interest and activity is generated. Maybe other home-brew activities will follow.

AHARS is currently deciding what the special project for next year will be but in the meantime:

Where do you find a market for crystal sets, only used once?

ar

What use would you be in a catastrophe?

By Chris Hill VK6KCH
PO Box 557 Willetton WA 6155
Fax 08 9354 8826
Email vk6ch@amsat.org

IMAGINE IF THERE WERE a large number of heavy industrial electric-powered machines in existence, all of which had the same hidden fault in them.

Imagine that one day, all these machines simultaneously started to draw very large currents from the public power supply network, currents much larger than the network had ever been designed for or had encountered before.

What would happen?

If you asked someone "in the know", the answer will be (justifiably) qualified as dependent on variables such as how wide spread the phenomenon is, how closely synchronised the onset of the fault condition is, how large the inrush and steady state currents are, what other loads the network is supplying at the time, and finally, what protection is offered against such faults on either the customer premises and/or supply side of the line? When pressed for a simple answer, the responses vary from "clean, orderly protective shutdown of the affected area" to "wide-spread catastrophic failure".

At the light end of the scale, a few industries and residential areas would be without power for a few hours or even a day. At the bleaker end, whole scale disruption to our entire power supply network would have a flow-on effect. There would be extended loss of power to residential areas meaning days or weeks with no electric hot water (more cold showers!), no TV, no microwave ovens, no air-conditioning, no computers, and for many, no amateur radio.

Worse still, loss of industrial supplies would mean whole business sectors standing down, affecting white collarand blue, and secondary effects would emerge, such as sewerage plants. Unable to pump the proverbial uphill, untreated waste would be dumped into rivers and lakes.

Sound incredible? We certainly thought so until heavy dew in May 1994 saw Perth without power for 3 days. People were sent home from work when their PCs wouldn't work. Fax machines stopped and incoming phone calls couldn't be answered because there was insufficient battery back up on the PABX. Generators quickly disappeared from equipment hire businesses, and became a luxury item!

More recently, Brisbane and Auckland have discovered what a prolonged outage can mean, and Victoria lost gas supplies for nearly two weeks.

If you were to wake up tomorrow morning without power, gas or water, would you, as an Amateur Radio Operator, be an asset or a liability to the community?

What if the problem was so systemic, so widespread, that backup batteries were discharged at remote radio communication sites, backup generators ran out of fuel, and the Public Switched Telephone Network (PSTN) began to shut down in the affected areas?

The collapse of so many other everyday services would already have generated a large demand on emergency and relief services.

Loss of telephone services would add a new level of complication, especially for a society dependent on a reliable, ubiquitous telecommunications system.

Y2K and the relevance any of this has to Amateur Radio?

Right now federal, state and local authorities are developing contingency plans for just such a situation.

They are planning how to handle the unlikely, but conceivable event that a catastrophic collapse of the power, gas, tele-communications, drinking water and sewerage infrastructure "might" result from the Year 2000 problem, known as the "Millennium Bug".

Amateur Radio regularly argues that help in civil emergencies. If the telecommunications network collapses for a period of time, then hopefully Amateur Radio could live up to its promise.

I do not believe that we will see anything like the bleakest of scenarios, but it is possible. If you were to wake up to-morrow morning without power, gas or water, would you, as an Amateur Radio Operator, be an asset or a liability to the community?

How long could you provide alternate telecommunications under such conditions? Who knows about you, and how messages could be routed in and out of your Communications Post, (remember, the phone and mobile are out)

It is my perception that WICEN has been marginalised over the last decade as the government agencies they previously supported have gained easy access to advanced telecommunications over a widespread geographical area.

The push for contingency planning has highlighted the need for levels of redundancy beyond that in the existing systems. Most government authorities plan to have completed their preparations for next New Years Day by June 1999.

I believe we have a two month window in which to make ourselves known, and become formally integrated into the contingency plans.

One final call on the imagination: what if things go terribly wrong and amateur radio isn't there to help?

ar

...we have a two month window in which to make ourselves known, and become formally integrated into the contingency plans.

St Brandon DX-PEDITION

Stephen Pall
PO Box 93 Dural NSW 2158


St Raphael. Karl, HB9JAI (left) and Kurt HB9BXE before the international flagpole.

WE ARE SITTING in the coffee shop on the 36th floor of one of the prominent international hotels near Circular Quay. Before us is the glimmering vista of Port Jackson, the official name of Sydney Harbour, the Bridge, and dozens of ferryboats cris-crossing the glimmering water.

My host is Karl, HB9JAI. We are discussing Amateur Radio, DX-ing and DX-peditions, particularly the St Brandon activity in May last year. Karl, this grey haired Swiss Amateur, was the innovator and organiser of the expedition. He is still very enthusiastic about the achievements of the DX group, formed mainly from Swiss Amateurs with representations from the US, Japan and Mauritius.

Based on an Australian Army slouch hat I had seen earlier on his hotel bed, I discovered that Karl's amateur past has an interesting Australian connection. During WWII, in 1942, Karl was living in the British mandated territory called Palestine. There was also an Australian Army contingent there, in the Jordan Valley not far from where Karl lived.

One of the diggers was an old radio amateur who gave Karl his first lessons about Amateur Radio and who, as a parting present, gave Karl an RSGB Radio Amateur Handbook. Ever since that incident, Karl has fond memories of the man whom he knows only as Mike, who initiated him into this wonderful hobby.

In memory of Mike, who by now may no longer be alive, Karl searched the specialty shops in Sydney, until he found an Australian Army slouch hat that will be proudly displayed in his hamshack when he returns to Switzerland.

Cardagos Carajo Archipelago

The full story of the St Brandon DX-pedition is contained in a twenty one-page report compiled by Urs, HB8ABO. Here are some highlights of the report in an edited (abridged) version.

"The St Brandon (or Cardagos Carajo) Archipelago is in the St Brandon Sea, and lies at 16°30'S and 59°38'E consisting of 28 coral islands. It is not inhabited and is under protection of the UN as a wildlife area because of the unique abundance of fish and birds. Raphael, measuring a bare 200x250m, is one of the smallest islands of this archipelago. Thanks to the relative protection against typhoons, a meteorological observatory and a coast guard post were established on the island. Raphael is the island with the highest elevation in the archipelago – two metres above sea level! Nevertheless, it can happen once in every few years that it is flooded by a few centimetres of water in a cyclone.

"The ground of the island consists of coral mass and basalt covered with a thin layer of sand. A typhoon in 1995 has left its traces in the form of bent palm trees and the foundations of fishing huts that were swept away.

"Mangroves keep the soil together near the shore. There are bushes and a kind of fine conifer. On almost every branch of them are nesting birds of a species called Maquwa, which exist only in this archipelago. They are a bit slimmer than common gulls with a webbed foot of three toes. The wingspan is about 50cm; the body is black, the head grey, and the beak long and pointed. Every bird breeds one egg. They get small fish from the sea surface that they swallow and keep on stock. Most of them are also night active: their acoustic uttering such as rattling and a kind of mewing formed our nightly background sound together with the flutter of the awning of the tent in the wind. They are not afraid of man. Those who had their nest one metre above the generator had to suffer from uninterrupted QRM during two weeks of operation.

"Other inhabitants are big crabs, 10 to 20cm in length, which crawl out of their sand holes at night as well as a few dozen chickens who have the whole island at their disposal for digging. When unloading equipment Willy, Joe and Eric saw an adult dolphin. Jacky warned us of large centipedes, but only Yoshi saw one. It had crawled into his tent.

"Temperature during the day is around 28°C and 25°C during the night. Short rain showers pass several times a day. Everything feels moist and sticky. Within the tent the thermometer easily reaches 40 degrees.

How the team was formed

"Because an amateur licence for 3B7 had never been issued (except to local operators such as Jacky, 3B8CF), Karl put together plans and a team to operate from St Brandon. First he contacted members of HB9BQI, his

local Amateur Radio club in Zug. Hanspeter, HB9BXE, Joe, HB9AJW, Rene, HB9BGI, Christine, HB9BQW and Eric, HB9ADP all expressed an interest in being crew members on such a DX-pedition. In Dayton he invited George, K5KG, to participate. Later Willy, HB9AHL, Kurt, HB9AFI, Urs, HB9ABO, Hugo, HB9AFH, Yuuji, JA3IG, Walter, W7SE and Jacky, 3B8CF joined the crew.

Our Goals

"We wanted to give as many Radio Amateurs as possible the opportunity to make a contact with 3B7 while giving equal consideration to countries, continents and operating modes. Our goal was to make 40,000 QSOs. Although we wanted to have a friendly and congenial operating style, we were prepared to defend breakers and ourselves against interferers (policemen). Furthermore, we were not interested in doing any DX list operations.

Planning and Preparations

"First we established a budget and looked for prospective sponsors. After mid-1997 the group started with logistical and technical planning. In September 1997 Karl was in Mauritius for three weeks to get the licence and to charter a ship. This was a difficult venture, yet, by the time he returned to Switzerland, he had obtained written permission for a landing at Raphael Island in St Brandon and a verbal promise from the Mauritius Telecomms Authority for a 3B7 ham licence! That's how preparations began. Over the course of the next 6 months they spun up to high revs!

"In only four crew meetings – most of them without the foreign operators present the group coordinated the individual preparations. The main means of communication was electronic mail. In addition, several sub-committee meetings took place at various times and, of course; there were plenty of phone conversations and fax messages. Fortunately, we did not keep track of the telephone bills!

"Nothing was left to 'Murphy's Law'; all equipment was tested extensively and thoroughly beforehand. A 'Field Day' was organized to evaluate masts and tune antennas. Later, on St Brandon, the well-coordinated team did not encounter many surprises.

"In the final phase starting in mid April, preparation work seemed to increase exponentially. Each crew member was occupied almost exclusively by 3B7 preparations. Family and professional obligations seemed to take a back seat to 3B7 efforts. Packing and testing of all transceivers and power amplifiers and the partial assembly, tuning and labeling of all antennas and cables was hard work that paid large dividends once on St Brandon."

The final step in the departure was transportation of the hardware to the Zurich airport and customs clearance. Karl and Eric, both experienced in international shipping of electronics, did a superb job preparing the international customs documentation. This proved to be invaluable once in Mauritius. The large volume of gear – some 900 kg and 35 cartons – had to clear customs, not only out from and back into Switzerland, but into and out from Mauritius twice for the trans-shipment to St Brandon. "Karl and Eric definitely earned Gold Stars for their efforts." writes Urs.

Sequence of Events

The DX-pedition left Zurich on the 2nd of May 1998 and after an 11 hour flight reached Mauritius Island on the 3rd. The group loaded the fishing vessel UMBRINA II with equipment, food and supplies and arrived as St Raphael Island in darkness on the 5th of May. The first QSO was made with HA5ZM on 15 metres and by the 7th of May, after a generator failure, they started the full CW activity. On the same day the SSB station came on air. By the 9th of May RTTY and PACTOR were operational. They started to dismantle the SSB station on the 16th of May. Next day was the last CW QSO. The DX-pedition made 53,518 QSOs in 12 operational days.

The return journey from St Raphael to Mauritius was not smooth. Bad weather, high seas and winds up to 55 knots, delayed the return journey by many days. They arrived back in Mauritius on the 21st of May and landed in Switzerland on the 23rd of May.

But let's continue with the highlights of Urs' report.

Mauritius

"Mauritius welcomes us with humid and warm air, wind and clouds. We meet Karl, HB9JAI, Rene, HB9BQI, and George, K5KG, who came here one week ahead of us with 500 kg of freight to make logistical preparations. With them Jacky, 3B7CF, and Nasir Gopaul formerly of the Outer Islands Development Corporation, OIDC, the government authority responsible for St Brandon, Rodrigues and Agalega. Nasir has identified himself with our project to such a degree that he decided to come with us to 3B7! We greatly underestimated the help of these two Mauritian gentlemen. Their assistance and friendship proved to be among our greatest assets. The comprehensive support provided to us by Alain Langlois, the managing director of Raphael Fishing Co. (to whom "our" Raphael Island belongs) proved to be very valuable asset as well.

"A van takes us to the St. George's Hotel in Port Louis, the capital city of Mauritius some 45 km from the airport. In the meantime, Karl settles customs clearing for our 900 kg freight. All in all, the shipment consisted of antennas, masts, transceivers, power amplifiers, tools, cables, two Diesel generators, sleeping tents, station tents and camping toilets with their tents.

In rough seas

"Monday morning, May 4th, we loaded the Umbrina II at the pier in Port Louis. Radio equipment and food were stowed on the lower deck and the PVC tubing containing the antennas and the generators were put on the upper deck. All gear was securely lashed down for the expected rough seas, a move that paid off handsomely. Kitchen equipment, food and water, procured by the advance team in Mauritius, were also stowed on the lower deck. The last items of fresh food, procured that morning, were also stowed below.

"During the night the seas grew to six and seven metres. The ups and downs and heavy heel-overs were ceaseless. We were doing 10 knots, and

three-quarters of those aboard were seasick. There was no change until after 30 hours of rolling we reached quieter waters as we entered into the lee side of the St Brandon archipelago.

"At 17.30 we anchored off Raphael Island. Immediately the equipment was transferred into small boats with outboard motors, which were used to make the remaining 500 m to the flat sand shore. The fisherman on the island helped us to offload the boats and bring part of the goods ashore. We erected our sleeping tents in darkness (after 1800 hours local time) and stowed away our personal luggage. We had finally reached our geographical destination.

Bringing life to 3B7RF

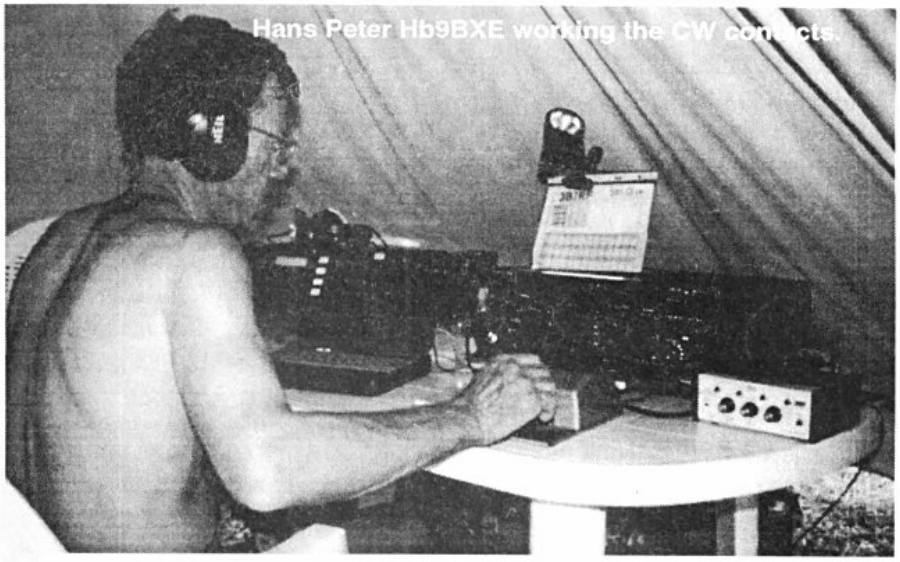
"Early the next day we erected the round CW tent and installed the two telegraphy stations. Concurrently the CW antennas were assembled and erected on their 10-metre steel telescoping masts. Eric is the radio equipment specialist; Kurt and Willy as a team know all parts of the Cushcraft yagis, and Hugo and Urs erected the Battle Creek Special.

"On Thursday, May 7, the installation of the SSB tent and the SSB stations was completed. Our now well-trained crew erected the CUSHCRAFT X-7 antenna. In spite of its weight of 35 kg, the X-7 was quite stable atop a 7 m mast. The X-7 turned out to be our best performing yagi.

Every day life on Raphael

"During our spare time we try to sleep, go on a photo walk or take a swim in the lagoon. Low and high tides cause a difference in sea level of just about 20 cm. But those who soak their clothes in the sea have to be prepared that high tide will carry their laundry out to sea. Swimming in deep water is not recommended due to the sharks. A very easy walk around the island takes at most half an hour.

"From Friday, May 8, all four stations are fully operational. The pile-up is immense. Our four stations log an average of 5,000 to 6,000 contacts each day. In the evening we celebrate Joe's and Karl's birthdays with white wine, cognac and dessert.


Hans Peter Hb9BXE working the CW contacts.

"Willy and Kurt erect the ninth antenna—a delta loop that gives us a remarkable improvement on 40 m SSB over the 40-m single element on the tribander. Electric fans make the sauna-like heat in the operating tents bearable. Sometimes the wind shakes the tent so much that nothing can be heard in the earphones. The bottle of drinking water, like the key and microphone, is always within reach of the operators.

"Sunday, May 10. Today the pile-up is denser because people have time to be on the look out for us. Those who grasp our split operating concept work us easily. We try to work the weak stations as well but often have to ask the breakers to be quiet. After four hours of concentrated work, relief is really necessary.

"As there is no map of the island, Urs does a survey of the island by means of GPS satellite navigation and a compass. The compass deviation here is about 14° west. Drinking water, brought here by ship is so scarce that rainwater is collected into barrels.

"For personal hygiene, seawater has proved to be sufficient. To clean our teeth we use table water from the bottles and before meals we afford ourselves the luxury of washing the hands with the cistern water.

Good bye Raphael

"The last dinner is a celebration. We have as our guests the kitchen crew of the fishermen and meteorology officers. Karl inaugurates the little ceremony with a speech about our successful efforts, i.e. about his dream coming true, about the good team spirit, and about the kindness of the Raphael Fishing Co. Linley, head of the fishermen, in turn thanks our team; he and his mates enjoyed the change. Little gifts such as whiskey and a Swiss Army knife with our callsign engraved move him almost to tears. The mood on the island inspired our friend Nasir Gopaul to write a romantic novel that, of course, was woven with references to a group of ham operators on an expedition. After the speeches, our cook, Richard, surprises us with a lively Sega performance – the island music of Mauritius. Linley and Claude, other fisherman, form a backing for the singer by drumming on empty jerry cans. (The basic rhythm of Sega seems to be like continuously sending the figure 4 in CW).

Rough seas again

"Monday we wake up at five. Dismantling personal gear and once again embarking on Umbrina II. On the ship we hear bad news: Due to bad weather we are unable to start our trip back. After some discussions it is decided to go to the Ile du Sud, the southernmost island of the archipelago. No problems on the two-hour trip there because we are on the leeward side of the reefs. Captain Pierre continued for a few miles into the open sea, but had to return due to high seas and strong gusts. Twice we were hit by a double wave, which made the vessel roll as much as 40 degrees! Therefore we throw

the anchors west of the Ile du Sud and stay over night.

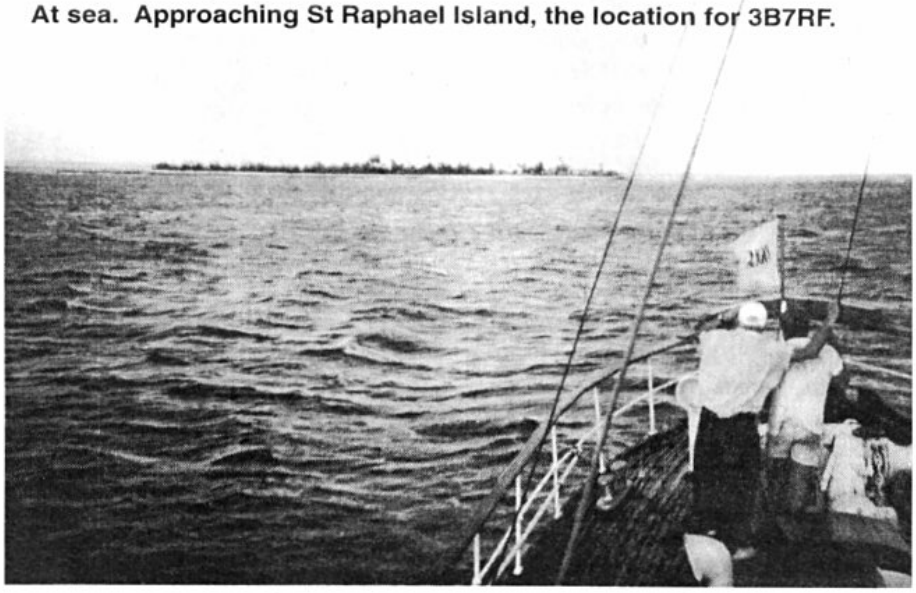
"The next morning at 07.30 we receive the latest weather report. Last night there were gusts up to 55 knots or almost 100 km/h. A high-pressure area to the south and a perturbation line in our vicinity are the reason for this strong wind. The weather hasn't changed since yesterday! "Bad weather" in this context means: sunshine, slightly cloudy, temperature around 28°C but strong wind that blows apart the white crests of the high seas even within the reef. Eric and helpers repair the ship's onboard Raytheon HF transceiver with lots of improvisation. A defective inverter inside an integrated circuit is replaced by a transistor scavenged from an old sonic depth finder. The ship's crew was ecstatic when they realized their HF radio was working again. Now radio contacts with the freighter Eliza and Raphael Fishing Co in Port Louis are possible again, and we are able to receive weather reports. Unchanged WX bulletin at 11 hours. We are still stuck. The stormy weather remained all night. At dawn it's becoming a bit calmer and the situation improves.

"On May 21st at 11.00 Umbrina II stops engines at the pier of Port Louis. Raphael Fishing Co hosts us with sandwiches, which we eagerly gobble up after three days on a very limited menu. Unloading equipment, transport to the airport and customs clearing occupies the balance of the day. The first fresh water shower back in the St George's Hotel after 14 days of seawater is just great! Dinner in a Chinese restaurant was delightful and finally there is enough beer for everyone!

Farewell

"On Friday we take a little sightseeing trip to the southernmost part of Mauritius. In the evening we hosted an official farewell party with aperitif in the very classy Labourdonnais Hotel at the Caudan Waterfront. Invited were the ship's crew, government representatives and radio amateurs of the Mauritius Amateur Radio Society (MARS). We had decorated the place with our national flags and with the banners of our sponsors. We wore the white sweatshirts with the "3 B7 RF"

At sea. Approaching St Raphael Island, the location for 3B7RF.



markings. (Maybe this misspelling will become as famous as that of the legendary Blue Mauritius postage stamp). The representative of the Ministry of Telecommunications, Mr Beehare, was obviously pleased by the results of our operations. He phoned Karl, Christine and George at 05.30 the next morning at the hotel to wish them a pleasant journey and request a subsequent get together with Karl at the next ITU meeting in Geneva.

"After our very boisterous crew enjoyed a rollicking dinner in an Italian restaurant and a late night stopover in a local casino, everybody was busy with packing his personal affairs to be ready for departure early next morning. During the flight back home the busy DX-pedition crew went to work again. Two laptop computers were unpacked and then the first draft of the present report was formed in an altitude of 10,000m.

OPERATIONAL CONCEPTS

Split operations

"We tried to achieve our goal with a relatively wide split window of up to 15 kHz. Experience showed that we were able to work the weak "100 watt/ dipole" and QRP stations. We often had difficulties, mainly in CW, in extending the split window from 2-3 kHz to a width of 15kHz. Over and over we asked our audience for a wide split by broadcasting "pse qsx up 5 to 20". Those stations that got the messages were easily worked and, hence, worked – even the very weak ones. When tuning back to 5 kHz up there was again an unimaginable crowd of stations calling. Under such circumstances only the big guns were able to pound through the QRM.

Discipline, behavior of the other stations

"We saw that the old experiences are still valid. The best disciplined are the Japanese followed by the Americans. Most of us noted with great satisfaction how disciplined was the behaviour of Ukrainian and Russian stations.

"From 3B7 the beam direction for Europe and North America was the same. Therefore European signals were mostly louder than those from US.

So we often had to explicitly call CQ USA only, EU pse standby. Surprisingly even the Europeans sometimes would stick to our request! The repeated demand USA only after each QSO led to a certain discipline among the Europeans. Of course the QSO rate with this long CQ call is never as high as with pile-up of Japanese or stateside stations only.

"Our principle, to complete every contact despite all the breakers, cost us a lot of time. With a friendly but decisive attitude we managed to control the pile-up.

"On at least two different days we heard a pirate on 7013.7 kHz calling

Contacts made per band and mode

Band	160m	80m	40m	30m	20m	17m	15m	12m	10m	Total
SSB	0	0	1915	0	4638	3336	4829	2974	2004	19696
CW	511	2231	2976	1707	5124	4809	7315	4553	3961	33187
RTTY	0	0	0	0	296	0	477	0	0	773
Total	511	2231	4891	1707	10058	8145	12621	7527	5965	53656

CQ de 3B7RF UP, while we were transmitting on 7007. It's hard to say how many stations the pirate tricked. Even harder to understand is what the pirate intended with such a procedure. Maybe he just wanted a report. Here it is: You were 599!

Shifts, operating timetable

"The task was to operate two CW stations, two SSB stations and partly one RTTY station around the clock during 10 days with 14 operators.

Best solution seemed to be a 4-hour shift. Mostly every participant could choose himself at what station (SSB or CW) and what shift he wanted to work.

To occupy the stations around the clock, Hans-Peter sometimes had to assign night shifts that caused no problems among the participants. The shift plan was continuously established about half a day ahead, so that we were able to consider the propagation conditions and the wishes of the hams in the world. George, K5KG, and Walter, W7SE delivered propagation data as a base for the selection of working bands.

At 12 hours we have lunch; the four working operators are relieved a bit later. At 19.30 again at least ten people enjoy a common dinner, the four remaining join after their relief. That's the daily routine to simplify the task of the kitchen crew. On a bulletin board we can study the shift plan, propagation conditions, pilot's reports and even a menu plan.

Results, statistics

"With more than 53,000 QSOs in all we were able to work all ITU zones and 150 countries. Our contacts are divided among bands and modes as tabled.

QSL cards

"The club station HB9RF will manage dispatch of QSL. Mail address: HB9RF, Postfach 37, CH-6319 Allenwinden, Switzerland.

"Cards received via bureau will be replied to 100 percent. Cards sent directly will be replied to directly where return postage is provided; otherwise they will be sent via the bureau.

Description of the stations

"For CW and SSB we used Yaesu FT-1000MPs on each of the four stations. As a backup we had two FT-920s. The receiver of the FT-1000MP matched well the requirements of this expedition and every operator quickly mastered its features. As power amplifiers we used two Ameritron AL80BX and two Yaesu VL-1000, the latter for the WARC bands. Transceivers and PAs were connected via ICE band pass filters to minimize inter-station interference. When changing bands we very much appreciated the fully automatic band switching of the solid state VL-1000s. We selected the antennas by hand-connecting the well-labeled coax cable to the proper PA.

"Logging was done on Compaq Aero 4s. At the beginning we had problems due to the RF getting into the laptops. (For this reason at least one valid contact with a JA station was lost and some QSOs were erroneously run simplex because the PC inadvertently changed the transceivers controls). After we blocked all leads to the PCs with ferrite chokes the PCs worked flawlessly.

"The RTTY-Station consisted of a PC running Plusterm software, a PTC 11 modem of SCS and Yaesu FT-920. During the RTTY activity day the VL-1000 of the SSB WARC station was connected to the RTTY station.

ANTENNAS

Battle Creek Special

"This antenna is a vertical radiator for 160, 80 and 40 m with traps and 32 radials laid out on the ground. It was generously loaned to us (as well as to other DX-peditions before) by K8GG, W8UVZ and W0CM. Many thanks!

"During tests in HB9 we remarked that the high RF current to the radial net flowed across the hinge between the base tube and the base plate. HB9AFH constructed a device that could be fixed to the original mast base with just two screws. This improvement then brought us the following advantages: Good low-impedance contact to the radial net, and tensionless, easy mountable fixing of the 32 wires to the base plate.

"For 160-m operation a switch at the antenna base inserts a 2:1 impedance transformer. The Battle Creek Special yielded very good results on all bands. Results on 40 m were far better than those with the 40-m add-on to the Yagi. The signals on 160 m were very often below noise levels at our geographic latitude, which, of course, was not the fault of the vertical antenna. Obviously our signals in Europe, USA and Japan were far better than vice versa. We believe that we would have benefited by a Beverage antenna however, the impedance transformers were unfortunately left behind in HB9.

40 m delta loop

"The 3-element Yagi for the "classical" bands equipped with the 40-m add-on was not very effective on 40 m. We had difficulty to being heard. So Willy and Eric proposed a delta loop. Kurt found a centre insulator in his luggage and the last reel of coax was opened.

"As a suspension point we used SSB WARC Yagi, the mast of which was

lengthened by the boom of a 2 m 14 Element Yagi. The delta loop was suspended in our main radiation direction NW. (EU and USA). It was fed in one of the two lower corners. The initial SWR of 1:1.7 was promising. During the notorious low traffic period (2200 to 0100 UTC according to conditions), Willy connected the loop. First some African stations checked in loud and clear as usual. But then some JA stations proved to be very strong too, so the expectations of this simple wire antenna were growing.

"After 10 minutes a steady pile-up between 7080 and 7100 came up to stay. This convinced us of the qualities of this antenna. During several nights we had further successes. Among others we were able to work hard-to-reach regions of the US West Coast and mid-west with good signal strengths. Thanks to this loop we worked 1915 stations on 40-m SSB. Compared to the simplicity of the antenna and keeping in mind the operating mode; this is a remarkable result.

Yagis

"Six Cushcraft Yagis were used for the four stations. The CW stations had access to two A3S Yagis (one of which was equipped with the 40 metre element) and one A3WS (with a 30 metre element) for the WARC bands. The SSB stations were configured with one A3S, one A3WS and the large X-7 triband Yagi. All antennas were installed at a height of about 8 metres on heavy duty telescoping Letrona steel masts that were guyed off to heavy aluminium stakes driven into the coral ground. We had just two beam directions: northwest for Europe and USA and northeast for the Far East. We turned the Yagis by a rope attached to the director end and tying it either to the "Europe coral" or the "JA mangrove".

Interference

"As a condition of our 3B7RF license, we were prohibited from causing interference to the HF radios used on Raphael by the Mauritius meteorology and coast guard stations. Early in our stay on Raphael we reviewed their frequencies and operating schedules. Getting on a friendly basis with the crews of these stations, carefully explaining our purpose, inviting them to inspect our installation and avoiding their 30 m frequency during their morning transmissions resulted in no interference complaints whatsoever.

"Inter-station interference was minimal. Each of the four stations was operated at all times with ICE band pass filters installed between the transceivers and the linears.

"Simultaneous operation on CW and SSB was routinely carried out on 10, 15 and 20 metres without inter-station interference. Being able to carry this simultaneous operation greatly enhanced our QSO rates during the time these bands were open. Simultaneous operations on CW and SSB on 12, 17 and 40 metres, however, were not possible due to the limited frequency separation between the modes on those bands. No doubt with greater physical separation between CW and SSB stations, simultaneous operation would have been possible.

Food and Shelter

"To avoid mutual interference during shift work each team member had his own tent. The fisherman had erected a team tent and a storage tent for us. The first dinner we had tuna fish (caught by Umbrina's crew), pasta and pumpkin puree. Rene, HB9BQI, and Christine, HB9BQW, were responsible for food.

"Examples for other menus were: Baked fish, dried potatoes, cooked pumpkin, Chinese noodles with fish, fish roasted on a spit with rice and salad, salted fish, curry fish, grilled fish, sweet-sour fish with seasoning, soup, potato salad, corned beef, macaroni with cheese dressing and cuttle-fish. Homemade (HB9BQI) wholemeal bread and filtered coffee produced a good mood at the breakfast table. There was one beer per day person (clearly not enough!).

"Once Yushi, JA3IG, served us a freshly prepared raw fish. He tells funny stories about swallowing living shrimps and sepias in Japan. The meals are simple but excellently prepared by Noel and Richard, the kitchen crew of Raphael Fishing Company.

Sanitary Equipment

"There were two camping toilets each within a tent. Sea view included. So ends the very detailed report of Urs, HB9ABO about the St Brandon DX-pedition."

How everything began

During our long and friendly encounter I felt that I had known Karl for a long time, especially after discovering that our footprints might have crossed during the early years of war in Europe.

The shadows of the pleasant afternoon were growing; it was time to go, and to say good-bye to each other.

"Ten years ago" said Karl "I visited Mauritius for the first time. The beauty of the island and its friendly multi-cultural inhabitants left me with delightful imaginations and reminiscences. In 1996 I resumed my former links with the intention to celebrate my 75th Anniversary and 50 years of ham activity in a special way. I was thinking about an expedition to the St Brandon Islands!" And he fulfilled his dream.

ar

A Current Indicator for Open-wire Transmission Lines

Drew Diamond VK3XU
45 Gatters Road
Wonga Park VIC 3115

Using an ASTU

A loop, or dipole antenna fed with "open-wire" transmission line probably gives the amateur, with the usual space and height restrictions, one of the best all-round multi-band antennas available. Depending upon the antenna, and transmission line lengths, we may get, at the station end of the line, "current feed" (low impedance), or "voltage feed" (high impedance), or anything in between. Also, the impedance may be resistive, or resistive with a capacitive or inductive reactance component. Unless the impedance is outrageous, a good antenna system tuning unit (ASTU) can generally make such an antenna work well on just about any HF band.

Intuitively, for each band, we generally adjust the ASTU for lowest SWR in the coax cable connection between the radio and ASTU, and leave it at that. But this SWR reading does not tell us what is actually happening on the transmission line between the ASTU and antenna.

For comparison purposes, one each of the three most popular ASTU circuit configurations were built; a "Link-coupled Transmatch", an RSGB "Z-Match", and the ARRL's favourite; a "T-network Transmatch".

The system to be "tuned" to the various HF bands was a 160 metre dipole fed with about 10 metres of ladder-line. Each circuit was carefully adjusted for minimum SWR in the coax cable. Interestingly, for the same frequency and transmitter power level, the value of transmission line current (and hence, by reasonable assumption, RF power "up the stick") was different for each ASTU, even though the coax SWR was 1.0 in each case.

Line Balance

I'm not going to tell you which circuit appeared to give best results; that aspect has already been adequately thrashed out in this and other journals. And anyway, my ASTUs may not be as efficient as yours.

Rather, in addition to the SWR in the coax cable, we should also be interested in the relative value of current (or voltage) in each wire of the transmission line to the antenna. In this instance, we are not worried about the SWR on the open-wire (or ladder) line. It may be, and probably is, quite high. Losses are acceptably low however, because the dielectric is mainly air, and the conductors are low resistance copper. The wires are closely coupled, so if the current and voltage levels are the same in each wire (but opposite in phase), then line radiation will be minimal.

RF Ammeters

At low and moderate impedances, an RF ammeter in each wire of the line will show the relative value of current. Hopefully, if the antenna is supposed to be balanced, they should be equal, or nearly so. For a voltage, or high impedance feed, a small desk-lamp fluorescent tube placed across the open transmission line will glow (at about 10 W and above, depending on tube type). The tube's brightness makes a handy indicator of electric (voltage) field intensity.

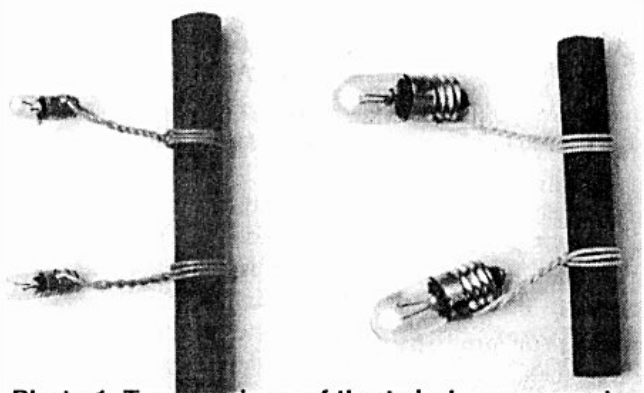


Photo 1. Two versions of the twin-lamp current indicator.

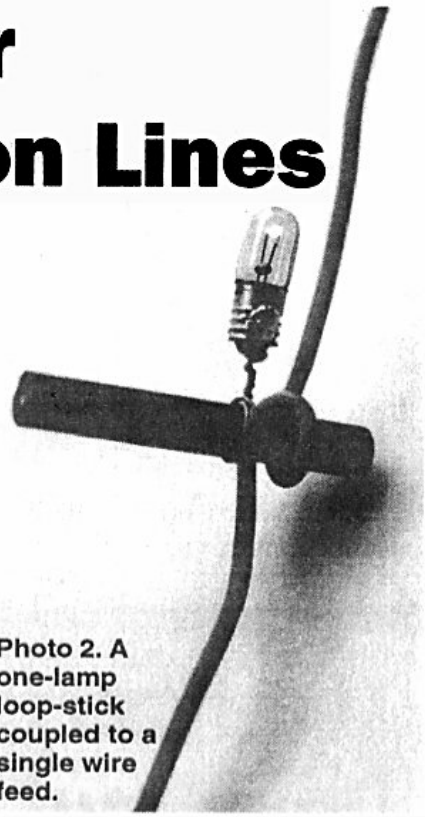


Photo 2. A one-lamp loop-stick coupled to a single wire feed.

RF ammeters are now rare items, particularly matched pairs. An unfortunate characteristic of the thermocouple type RF ammeter is that it is fairly easily overloaded to destruction. Many of the meters that I see at Hamfests, for instance, have "had-the-gong". You can easily check for their serviceability; turn the meter to and fro with a twisting motion. If the needle swings around freely and bounces off the stop, then the thermocouple is probably burned out. If the needle appears to be damped, the meter and thermocouple are probably good.

Substitute for RF Ammeters

Here are details of a simple device which makes a fair substitute for a pair of ammeters. Photo 1 shows two versions of a twin-lamp current indicator. The lamp type is not critical, but they must be identical. The small pea-lamps are 6 V/100 mA, #2721142 from Tandy, and the dial lamps are 6 V/150 mA, # 40 (generic). Each lamp is soldered to a three-turn hook-up wire link, which is wound upon a 70 mm (not critical) segment of ordinary loop-stick rod.

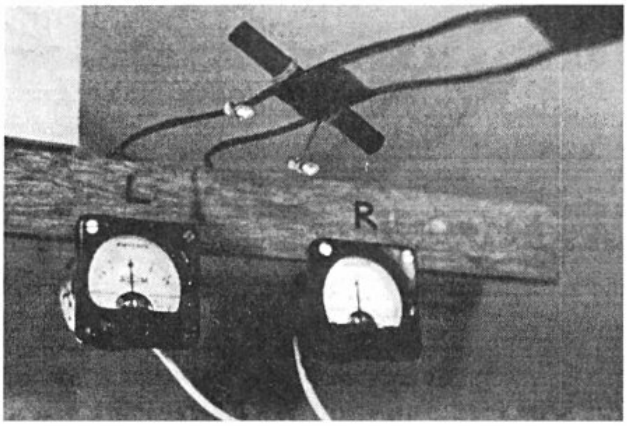


Photo 3. A one-lamp loop-stick coupled to a single wire feed.

In operation, the rod is placed, or attached (perhaps with a clothes peg) to the transmission feed line as shown in photo 2. Note how the link coils lie immediately adjacent to the outside of each wire of the line.

When the line is energised at moderate to high power (say, 100 W), the lamps should have equal glow, indicating that the current in each wire is the same. It may be necessary to move the loop-stick further along the line to find a higher current point.

The presence of the device introduces negligible disturbance or loss to the system, and does not alter ASTU settings. When making tests and adjustments, it will be found that smallest changes in current (and hence, resolution) may be observed when the lamps are at about half or 3/4 brilliance.

Photo 3 shows how a one-lamp loop-stick may be coupled to a single wire feed. Shown here is the station end of my inverted-L 160 metre wave antenna at the 50 W power level. At higher power levels it should not be necessary to coil the antenna wire around the loop-stick; simply place the lamp link coil adjacent to the wire.

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1. *Radio Communication Handbook*, 6th edition, RSGB.
2. *Radio Handbook*, William Orr, Howard W. Sams & Co.
3. *The ARRL Handbook*, 74th edition.

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The Fourteen Second Doughnut

— getting it "just right"

by Ian Jackson VK3BUF
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WHEN IS ROUGH ENOUGH, good enough? Occasionally everyone must ask themselves this question when performing a task. The task can be anything, erecting a fence, making a meal, building a child's cubby house or merely driving a car. Can I do better? Do I need to do better? Differences are critical, and sometimes only a matter of personal asthetic.

We probably all know someone who has the 'She'll be right mate' attitude. Everything they do is completely casual and rough enough is always good enough. This is all fine and good, and may give that person more time for the better things in life, but would you let that person service the brakes on your car?

I have known perfectionists. Every coffee mug in the cupboard has a corresponding cup hook, their garage will have a shadow board so that each tool occupies a well defined niche. A lawn trimmed with scissors and a bed with sheets tight enough to bounce a ping-pong ball. They can spend so much time organising themselves that they will never actually do anything. Doing something may introduce unknown and uncontrollable circumstances. Something to be avoided at all cost.

So what is this all about? It's about getting the right mix. The art of looking at a task and deciding how good it has to be to achieve the best end. For example, you are building up a little circuit. You have the soldering iron out, you chase the parts around the benchtop blobbing solder on here and there and the circuit is complete. You test it and it works. Fine, that is all you need to do if it is going to remain in the bench. But if you decide to put the circuit in a car, bumpy roads are going to break this baby apart in no time! Back to the work bench. You re-do all solder joins, be careful, don't burn off all the flux and leave daggy bits jutting out when you pull the iron away, shorten all the wires, put strain relief on external cables and add four more mounting screws. All done.

Take another example. You are washing dishes (strictly hypothetical in my case) and you encounter a plastic dish with a bit of dried food stuck to one side. You scrub it hard but it stays. You get out the steel wool and it still won't come off. A trip to the workshop reveals that the chisel and the screwdriver only scratches this residue a bit. Finally the angle grinder restores the bowl to its pristine condition.

Upon your return, your spouse says "Ahh, I've been looking for that", fills the bowl with mince and gives it to the dog. Meanwhile you realise that you've missed the first twelve minutes of a *Yes Prime Minister* episode you've been dying to see all week.

How good something has to be is the hidden variable. The next time you embark upon a project and you are figuring out shapes, size, colour, location etc, stop and think about how good it has to be. Keep the project simple and you may have time left over to read a book, watch TV, or perhaps slip in an extra project. Failure to spend enough attention to detail might mean that your assets and possibly even your life are at risk.

Oh yeah. The fourteen second doughnut. Occasionally I spoil myself with the odd pineapple doughnut. The problem is that if served cold, they are hard, greasy and stick to the roof of the mouth. The modern microwave oven is a godsend for us doughnut eaters. But be warned, if served too hot, doughnuts become limp and scalding.

In a 600 watt oven, fourteen seconds is just right.

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REFLECTOR SECURITY BEAM

NEW

This security beam uses infra red (IR) which is transmitted to a reflector and back again across a doorway. If the beam is broken by anyone, the buzzer will sound, and only sound while the beam is broken. The buzzer is on the end of 20 metres of cable. The range is up to 7 metres. **Only $119** Cat. LA-5192

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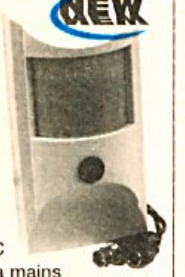

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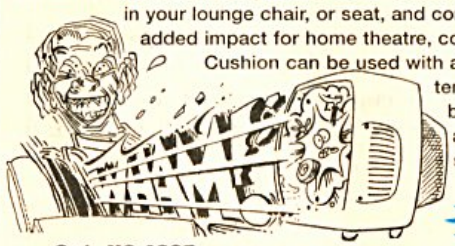

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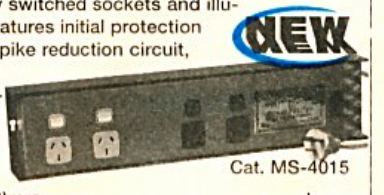

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Narrow Band Voice Transmission

Lloyd Butler VK5BR
18 Ottawa Ave
Panorama SA 5041

THE MARCH 1995 ISSUE of Amateur Radio included my article "An Adjustable Audio Filter System for the Receiver". This described a system using switched capacitor filters to provide continuous adjustment of lowpass, highpass, narrow bandpass and notch filter characteristics. In the June 1995 issue, I followed up with modifications to allow control of a wide band of frequencies that could be rejected or slotted out within the audio pass band.

Having experimented with the rejection band arrangement, I observed that there was little difference in speech quality if a complete band from 500 Hz to 1500 Hz was taken right out. Only frequencies below 500 Hz and above 1500 Hz seemed important for good intelligibility. I made the point in the article that if noise or interference was concentrated in the 500 to 1500 Hz spectrum, it could be reduced without loss of speech quality by simply slotting out this part of the audio spectrum.

I didn't think much more about this until I read the Pat Hawker Technical Topics column in January 1998 issue of Radcom. He described how in December 1977 issue of QST, Dr R W Harris and J C Gorski announced a new narrow band method of voice communication. The system made use of the characteristic of speech I have just discussed and audio frequencies in the range of 600 to 1500 Hz were not transmitted.

Narrow Band Voice Modulation (NBVM)

Pat Hawker further discusses how the system was perfected by R W Harris WB6CZX and T Lott, VE2AGF/W6. The theory of their system is illustrated in figure 1. Normal speech is transmitted around 300 to 2400 Hz as shown in Figure 1a. In NBVM, freqencies from 600 Hz to 1500 Hz are dropped out as shown in Figure 1b. Frequencies between 1500 and 2400 are then shifted down to occupy the range of 600 to 1500 Hz as shown in Figure 1c. The complete audio band is thus reduced to a range from 300 to 1500 Hz.

In effect the system emphasises the most important information bearing parts of speech (the consonants) but discards the mid range vowel sounds. On reconstruction of the frequency spectrum in reception, the original timbre and voice identification characteristics are retained.

So how is the system made to work? I found some reference in the 1982 issue of the ARRL handbook and this helped me assemble the block diagrams, figures 2 and 3, for the compander system.

Transmission

Figure 2 shows how the speech bandwidth is compressed to feed into the transmitter. The speech is fed via a 2400 Hz low pass filter to restrict upper frequency, out of range, components. A 600 Hz low-pass filter separates the lower frequencies. The whole spectrum to 2400 Hz is fed to a balanced modulator to mix with a 3000 Hz local oscillator. Output components are removed from the modulator below 600 Hz by a low-pass filter. The 1500 to 2400 Hz input components to the modulator are converted at its output to a range of 1500 to 600 Hz but in addition there are a lot of other frequency components generated above 1500 Hz. All the modulator output components above 600 Hz are then summed with the 300 to 600 Hz components at the other leg and fed through a 1500 Hz low pass filter which eliminates the unwanted components above 1500 Hz. Our audio signal is now restricted to 1500 Hz bandwidth to feed the transmitter modulator.

Reception

At the receiving end, the audio output from the receiver is in the compressed bandwidth form and it must be expanded in a reverse process to restore intelligibity. This is illustrated in figure 3. The receiver audio is first fed through a 1500 Hz low pass filter to remove any higher frequency extraneous components. The frequencies below 600 Hz pass through

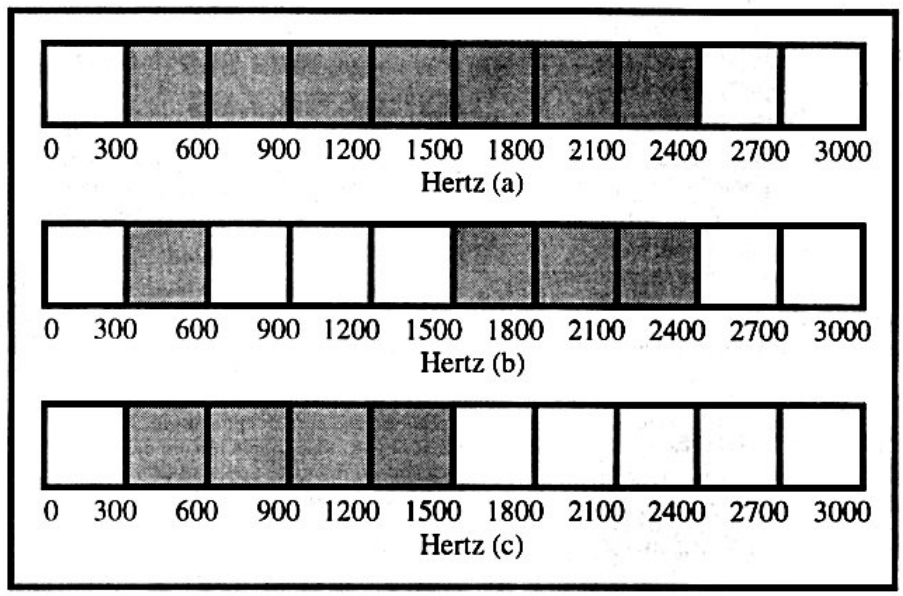

Figure 1. Compression of the voice band for Narrow Band Voice Modulation (NBVM)

(a) Typical normal voice bandwidth used on SSB - 300 to 2400 Hz.
(b) Audio range from 600 Hz to 1500 Hz deleted without loss of intelligibility.
(c) 1500 to 2400 Hz speech spectrum shifted to replace 600 - 1500 Hz content. Total bandwidth is now 1500 Hz.

Source: Pat Hawkins - Technical Topics - Radcom Jan.1998

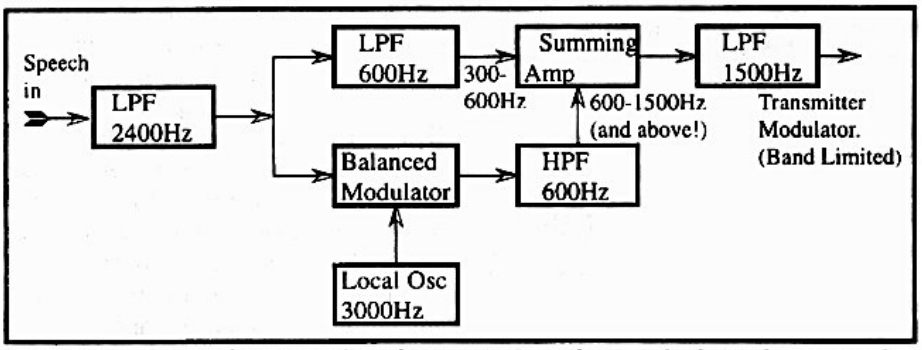

Figure 2. Block diagram showing compression technique for speech transmission.

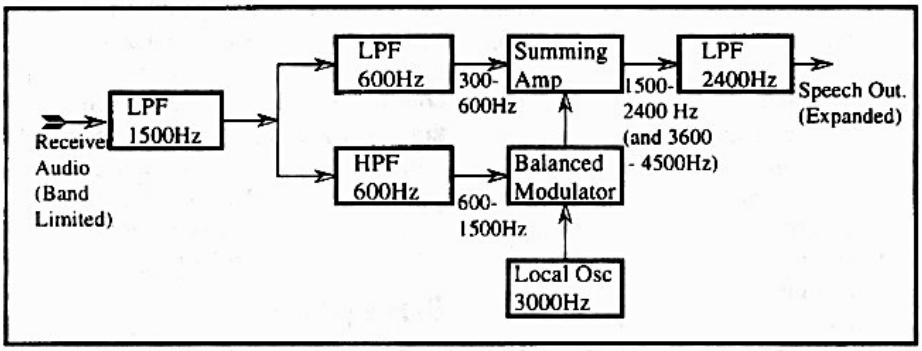

Figure 3. Block diagram showing technique for reconstructing speech on reception.

the low pass filter while those above pass through the high pass filter. The output of the high pass filter, above 600 Hz, are fed to a balanced modulator where they are mixed with a fixed 3000 Hz local oscillator.

The 1500 to 600 Hz voice components are restored at the modulator output to their original frequency spectrum, 1500 to 2400 Hz. In addition there are also other output components above 2400 Hz resulting from the modulation process. The modulator output components are then summed with the 300 to 600 Hz components from the 600 Hz low pass filter. Finally, the combined signal is passed through a 2400 Hz low pass filter to remove the unwanted higher frequencies. We now have the restored signal that can be fed to the receiver loudspeaker.

System Features

So what are the advantages of NBVM? The introduction of single sideband reduced the bandwidth requirement to 50% of the old AM. The NBVM system reduces the bandwidth even further to 62% of SSB. Because of the reduction in bandwidth, we can fit more stations in a given band space and we can expect a nominal improvement in signal to noise ratio of around 2 dB.

The Technical Topics report indicates quite high speech quality with only the 1500 Hz transmission bandwidth. In fact the report further indicates that if intelligibility only is required, a bandwidth of 1200 Hz or even 1000 Hz is possible by using a rejection band of greater than the 600 to 1500 Hz discussed. My own tests using the tunable filters confirmed the good speech quality for a band rejection extending up to 1500 Hz but the tests also demonstrated the loss of quality as the rejection band was extended upward above 1500 Hz.

But what are the negatives? There is the complication of providing four fixed audio filters to transmit and four to receive. On the other hand, the filtering is all done at audio level and need not involve internal modification to transmitter or receiver. Of course in this day and age of modern digital technology, the whole filtering process could be easily achieved using digital signal processing techniques and indeed it might already have been incorporated in some of the modern digital signal processing gear.

Another factor is that if you decided to transmit with this system, you could only communicate with someone who had installed the corresponding audio receiving gear. Pat Hawker writes about the lack in popularity of NBVM in amateur radio circles. He said "These disadvantages have evidently been judged to outweigh the greater spectrum efficiency and fairly modest improvement in SNR."

As I said earlier, the principle of dropping out the speech components in the frequency range of around 500/600 Hz to 1500 Hz in the NBVM system tied in nicely with what I had found experimenting with my adjustable filter unit. I thought it would be an interesting subject to reintroduce to the columns of our AR journal.

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3. Pat Hawker G3VA - *Technical Topics* - Radcom, January 1998
4. *ARRL Handbook*, 1982 edition - Chapter 14, Specialised Communications Systems - Page 14-33

Demonstrating Amateur Radio in a School

Graeme Scott VK2KE
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WE NEED TO encourage young people to enter our hobby for a number of reasons:

- There is a decline in those entering the hobby.
- The Limited Novice licence makes it easy to become a ham these days and we need to populate our bands to ward off attacks from commercial interests.
- It is healthier for the dealers of gear and it offers more people who can become WIA members.
- It even expands the second hand market for pre-loved gear!

Recently, I was asked by the librarian of a local high school to put on a lunchtime demonstration of ham radio for the students. I talked it over with Greg VK2EXA and we decided to give it a go.

Demonstration Station

We planned to set up two metre FM phone, two metre packet and HF. For antennas, Greg provided two metre and HF whips on his 4WD Toyota and we set up the station in the school library at Murray High School.

The Librarian advertised the event in the school newsletter and put up posters around the school. We were asked to do it from 1 to 2 pm over two days to catch as many students and teachers as possible.

It didn't take us long to put the coax cables out through the windows and connect them to the antennas on the vehicle.

We took the precaution of setting up a few local hams who were prepared to be on air to guarantee some real QSOs.

Presentation

When the kids arrived I did a short burst on ham radio and what it's all about. Greg gave a short talk on various activities, then we did some on-air demonstrations.

The activity was short and snappy to hold their interest. We had some local QSOs with Cleaver VK2MUA, and some others who could be on air at the time we wanted.

The packet demo was not quite so successful as it had computer problems. What we had on screen from the international link via the CSIRO in Sydney gave the students an idea of what fun packet is, similar to the Internet but without phone and provider charges.

We also had 10 metres set up in comparison for HF contacts. No DX was worked but, had more time been available, we might have got into that too!

We passed around my photo album which has the 100 QSL cards for the DXCC Certificate, and also the actual DXCC certificate in a picture frame. We prepared a handout sheet giving a brief outline of amateur radio, embellished with suitable graphics done by Dallas, Greg's wife, a graphic artist. The sheet was in a "question and answer" format to make it more meaningful. It had lead questions like, *"What is ham radio? What can you do when you have your licence? How do I become a ham? How do I get my licence? How do I study for my licence?"*

We finally had a brief question and answer session and the students then disappeared rapidly when the bell rang.

Your Demonstration

I'd like to urge all hams to consider putting on a demonstration like this at their local high school. It's not hard to do and, properly prepared, can attract more young people into our great hobby.

When the students ask how can we study for the licence, I can help there. To be honest I have a commercial interest — I have published four books based on the Australian ham radio licence exams.

The first one is the *Novice Operators Theory Handbook* which has sold more than 17,000 copies. The second one is the *Study Guide* which goes with the Handbook. The two together form a self-paced package anyone can use in any situation to study for the Novice Licence.

There are many blocks in the way of a candidate entering our hobby and we need to break them down. Many cannot attend a regular class in the theory so the study kit helps make it as easy as possible. Many people are in remote locations and cannot attend a WIA, TAFE or Radio Club class, so the kit now makes home study affordable and easy to achieve.

For those wishing to upgrade to the limited or full callsign we now have a *Bridging Course* and a *Study Guide* to go with it. And, if Morse code is being attempted, we have 5 wpm and 10 wpm tapes available via mail order.

Demonstration Planning

Here are some hints on how to conduct a successful demonstration in a school:

1. Check with the Principal, a librarian or a teacher if a demonstration would be welcome.
2. Check the time for the demonstration. A lunchtime is probably the most practical.
3. Ascertain what year levels are likely to attend (we had years 9 to 12).
4. Get an idea of how many may attend.
5. Look for suitable temporary antenna set-up spots.
6. Prepare a handout sheet.
7. Make sure 240 V power is available.
8. Brief some local hams to ensure some reliable on-air contacts can occur.
9. Preferably have two operators so you can help each other set up.
10. Test all the gear beforehand so any possible bugs are ironed out.
11. Stick strictly to the time allocated as the students will vacate the scene the moment the bell goes to resume classes!

If anyone wants to do a demonstration, contact me and I will post a session plan. Also, I'll post out some materials you can use, and the books to indicate the type of study materials needed for the exams. I'll even send out a master copy of the handout sheet we used to make the whole exercise as easy as possible to mount.

Why not take up the challenge to do a live demonstration of our hobby in a school! It's really quite a lot of fun and hones your skills at setting up a portable station.

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Remember the First Time
—Was it 599 all the way for you, too?

Sam Wright VK6YN
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THE INTEREST WAS planted in the early thirties, when a memorable visit was made to the shack of a well-known English Ham and Aviator, and this led to wartime qualification as a Wireless Operator, etc.

I gained experience in standard service equipment, such as MF and HF, 1082/1083, R1155 and 1154, as well as aircraft navigation equipment; Gee and ASV. The instinct to enjoy radio, the personal satisfaction of skilled operating and simply making communications, plus the inquisitive thirst to waffle to "far away places with strange sounding names" became firmly entrenched.

Service Qualified Wireless Operators

It all seemed the way to go when peace took over from those hectic years, and a real prize, for having risked life and limb for King and Country, —and a bit of excitement thrown in for good measure. For Service Qualified Wireless Operators, a full Ham Licence was obtainable without the need for taking a test. Whacko!!

But by that time, having plied a Dalton Computer and Astro Navigation Sextant rather more than a Morse Key, the edge of my C W speed was blunted somewhat, and, of course, unfamiliarity with long-standing abbreviations used by Hams throughout the world had to be learned, including the less polite ones, such as GS the use of which in the service could have resulted in a "fizzer" (I am unable to recall the code for "send with the other foot")

Ensconced in a densely populated suburb of South London meant a modest antenna system, but the first sally was to obtain the "Hardware". The Radio Society of Great Britain had by now intervened in the wholesale destruction then taking place of the massive amounts of ex-Service radio equipment. It was being thrown down disused mine shafts, quarries, crushed by tractors, etc. The RSGB obtained quantities of items suitable for Ham use, such as R1155, T1154, Class D Wavemeters, etc. But a more interesting and to me more useful type caught my attention. It was the B2 transmitter, aka "Suitcase Radio", which really did fit into a fairly small suitcase, and was supplied to secret and underground agents in Europe. Those brave "blokes and Sheilas" who parachuted into the dark and dangerous world that Europe then was.

Unfortunately, while the design and performance of the transmitter, a Crystal Oscillator plus a 6V6 valve power amplifier giving about twenty five watts was efficient, the exterior design of the suitcase, perhaps the brain-child of a real bureaucrat, was a "dead giveaway". No doubt on the intimidating streets of Paris, the heavy hand of the Gestapo must have grasped many coatcollars, uttering the German equivalent of, "'Ullo 'Ullo 'Ullo, and what have we here, then?" Although the one I obtained had neither receiver nor power supply, they were a bargain at two pounds!.

For a receiver, I had for some reason, perhaps a throwback to my early pleasure of "tickling the old cat's whiskers" decided that a simple OV1 using a double triode valve, 6C8G would suffice for this purpose. But where conveniently, to obtain this precise beast. It so happened, fortuitously, that at Hendon RAF Station, from where I was "living out", there was across the drome from our activities, an American Embassy Flight, flying Communication Aircraft, and they had the usual extensive "back-up" facilities common to all American bases.

The Americans in Britain were noted for their casual generosity so why not give it a go? The American airman who appeared to be "top dog" was a Master Sergeant, unmistakably from the South, who greeted me, the "Limey Flyer", with great good humor. "Certainly, buddy, what would you like?", as we entered this large hangar, wherein reposed, like a Treasure Chest, a vast hoard of radio equipment of every kind, with the BC342/348, and the associated transmitter, the B610 predominating. My request for a single valve, 6C8G, seemed to the Master Sergeant unduly modest and could possibly be regarded as an insult to the American Forces.

Anyway, due to transport problems I had no car and there was, of course, the delicate business of exiting the RAF Station too fully laden, but I was exceedingly happy with my bounty of a pristine BC348, plus a "one off" of the required valve.

The OV1, plus the power supply for this and the Suitcase Radio was quickly

"As one passed by, there was invariably a hoarse whisper of 'like a good time Dearie?' I found this a distraction, as in full flush of enthusiasm for my hobby, and with a modest amount of money in the pocket, the world of desirable radio parts was my oyster. My response... was, 'But I'm having the time of my life!'"

assembled from odds and sods bought in a back street of the West End of London, known as Lisle Street. Here, for six pence or a shilling, quality components of all types could be had. Those that had escaped by routes and devices known only to the Cockney entrepreneurs.

LISLE STREET WAS visited with some circumspection. It was a haunt of the Ladies of the Night, who always seemed to be on double shift by day. With a modest few shillings to squander on radio gear, I would visit the street, perhaps on a wet Monday lunch time, with a goal fixed in my mind, of say, a 500puff variable condenser. Approaching the several stores, and this was unkempt London at its worst, just after the war, the recessed door-ways were useful lurking places for the above-mentioned ladies. As one passed by, there was invariably a hoarse whisper of "like a good time Dearie"? I found this a distraction, as in full flush of enthusiasm for my hobby, and with a modest amount of money in the pocket, the world of desirable radio parts was my oyster. My response, perhaps a touch unkind and may have set a life long trauma of rejection was, "But I'm having the time of my life"!

As usual, the erection of any type of antenna demands much thought and usually a degree of compromise. The dense residential area further aggravated the situation. However, as we were on the top floor, height would not pose any difficulty in achieving a half wave on twenty, the preferred band. A sally across the back garden and the same across the other garden to the rear of the next street unearthed an elderly gentleman resident. He was a flautist in a symphony orchestra who, after my request to use his chimney pot for holding up what I described as an innocuous piece of wire, beamed his approval, and even volunteered to affix the said piece of wire.

A 67 foot "End Fed Zepp", similar to that used on the German Airforce Zeppelins during the First World War and reputedly having an immunity to carrying sparks from lightning strikes, was strung between the opposing chimneys. The feed line consisted of Open Wire feeders, made up of fourteen gauge wire, spread six inches apart by wooden meat skewers coated in melted candle wax, a pretty standard type of practice in those days. One end of the pair went to the end of the 67foot top and the other merely went nowhere.

The Antenna Tuning Unit was made up on plywood with a swinging link to adjust the load. Reference to basics, indicated that some bands should be current fed and others voltage fed. The mnemonic, for the type of feed is still firmly embedded in my mind. It went "Vep and Soc", which equated to Voltage Even Parallel and Series Odd Current. That is to say that when the feedline is an even number of quarter waves long, Voltage and Parallel feed. When the feedline is an odd number of quarter waves long, Current and Series feed.

"...it was 599 all the way, a real 'ice-breaker', a great moment, and the forerunner of so many satisfying conversations with so many friends all over the world"

The B2 Transmitter and the OV1 looked lost on the six foot rack of angle iron made from an old bed frame. But again this was then the standard practice. It left room for later expansion for, say, the popular Italian Geloso VFO driving high power rigs, with several "doublers", lumpy audio transformers, etc, all bristling with 807s, 5R4GY rectifiers etc. The whole caboodle exuding warmth and vibrations of the pleasant kind.

MY GUIDE AND MENTOR was "Ted" a Marconi Marine Operator with plenty of "Sea Time", evident in the sweetness of his keying fist and very tolerant of the real standards attained by war-time Wireless Operators. Like many with his background and talent, I assume that Ted noted incoming Morse signals not as anything other than spoken words immediately intelligible and any mental deciphering process quite unnecessary. Ah!, could but we "Sprogs" have attained this fluency and finesse in Mr Morse's art!

So now the installation was compete. Perhaps the first real live, "on air" QSO required a guiding hand. It was, after all, a giant step into the wide net of countless radio signals pulsing around the globe unceasingly. Maybe, I thought, with appropriate trepidation, that my first fumbling QSO may break into this ordered routine and cause keys to falter and scorn be poured on my head, via of course the aforesaid invisible media.

At that time, as I recall, VFO operations had some restrictions anyway. To construct a really stable Clapp Oscillator demanded a fair knowledge of mechanical engineering to avoid the melodious notes which it emitted at even the approach of the operator's hand. I did have, however, a couple of crystals down at the bottom end of the 40m band that would nicely double to close to the edge of the 20m band. This determined the frequency of the nervously anticipated "Sked with Ted", with the time for the next day agreed upon.

As indicated, it was 599 all the way, a real "ice-breaker", a great moment, and the forerunner of so many satisfying conversations with so many friends all over the world.

Over fifty years down the track, having had six different callsigns under my belt, having operated in six different countries on three different continents, the "Call of the Airways" still raises the pulse a touch, as the unknown beckons, with the faint, and perhaps elusive "CQ CQ CQ" a bit like Jack London's classic story, "The Call of the Wild" (or was it "White Fang".)

But this first contact was, however, a bit "sneaky ".

All journeys, of whatever length, begin with a first small step, but in radio terms, this first QSO was an extremely small step. Ted's flat was two doors away and he also had found a friendly soul across his back garden, who saw no objection to a long piece of wire being attached to his chimney pot.

Consequently, between our two parallel identical antennas, G3ACU (Ted) and G3CYT (me) there was a space of about two wavelengths on twenty, just a touch beyond "spittin' distance"!

That's my story, how was the "First Time " for you? (Sam Wright VK6YN, aka G3CYT, ZE5JH, VQ2SW, ZE1BY and ZS5BG)

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TECHNICAL ABSTRACTS

Gil Sones VK3AUI
30 Moore Street Box Hill South 3128

Receiver Calibrator and Transmitter Monitor

In RadCom June 1998 Ian Braithwaite G4COL described a useful receiver calibrator and transmitter monitor. The equipment uses a comb generator to provide a comb of pulses, arranged to have fairly uniform amplitude. This is done by using the reference oscillator to drive a very narrow pulse generator. The pulse generator uses high-speed logic integrated circuits that are readily available.

The waveform and spectrum of a train of narrow pulses is shown in Fig 1. The pulse repetition period "T" is set by the reference oscillator or a division of the reference oscillator. The pulse width "t" determines the variation of amplitude of the various harmonics with frequency. In Fig 2 the envelope of the harmonic comb's spectrum is shown. In Fig 3 the lowest frequency lobe of the spectrum shown in Fig 2 is shown with a logarithmic Y-axis. The lobe is 1 dB down at 26% of the first null. This means all harmonic pulses at the repetition or reference frequency are within 1 dB. The pulse width in this case is nominally 4 nanoseconds so this means that all harmonics of the repetition or reference frequency up to in excess of the 28 MHz band will be within a dB. A spectrum analyser plot of a 5 MHz output is shown in Fig 4.

A comb generator built using readily available integrated circuits can provide a range of signals of uniform level throughout the HF range. The signals can be used both to check calibration and sensitivity since the level can be calculated. The comb of pulses can be used also to drive a direct conversion receiver and in this way a transmitter output can be monitored. Just tune in the harmonic comb with the transceiver and then the receiver section of the equipment can provide a monitor function.

The monitor receiver uses a form of direct conversion receiver that is not often seen in amateur equipment. A CMOS switch is driven by the pulse train and acts as a demodulator. This has been used in electronic equipment and is a simple way to provide the function. A high speed CMOS switch is required but these are readily available.

A block diagram of the equipment is shown in Fig 5 (overleaf). The reference oscillator uses a 5 MHz crystal that can be calibrated against WWV. The range of harmonics is extended by using a divider that can divide by 10 or 100 to give 5 MHz, 500 kHz, and 50 kHz outputs. The pulse generator provides pulses that are 4 nanoseconds wide to generate the comb of harmonics.

Output level is given by pulse height x pulse width x repetition frequency x attenuation factor x -2. The pulse width is nominally 4 nanoseconds and the attenuation factor into a 50-Ohm load is 0.05. The pulse height is 5 volts and so for a 5 MHz repetition frequency the level of the lowest frequency teeth is 7.07 mV which is -30dBm. For 500 kHz the level is 707 µV and for 50 kHz the level is 70.7 µV.

A 40 dB attenuator will give a 0.7 µV signal from the 50 kHz comb. The monitor input should be kept to 0 dBm and so a 40-dB attenuator will accommodate a 10-watt transmitter output. The attenuator must be able to handle 10 watts though in this case. A suitable attenuator or pickup can be made fairly simply.

The circuit of the calibrator and monitor is shown in Fig 6 (overleaf). IC2 should be a 74HC390N and IC3 should be a 74HC4066P while IC4 is a 74AC00. These ICs are readily available. Construction can be ugly construction using a piece of copper laminate or PCB as the baseboard. Bear in mind that the narrow pulses involve frequency components of hundreds of megahertz. Very short direct wiring and good bypassing and earthing are required.

The battery shown as a PP3 is a NICAD battery pack for a nominal 9V system. A PP3 battery is equivalent to our 216 type. The circuit includes a charger for the NICAD pack.

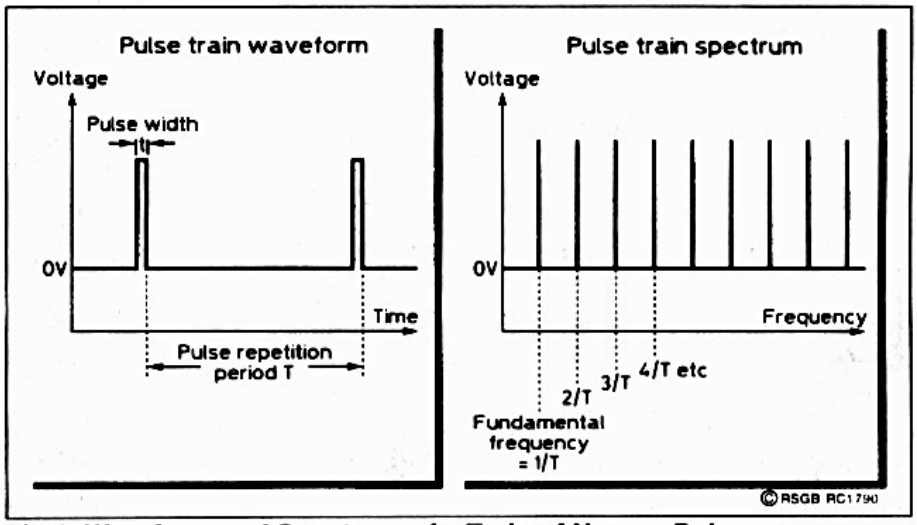

Fig 1. Waveform and Spectrum of a Train of Narrow Pulses.

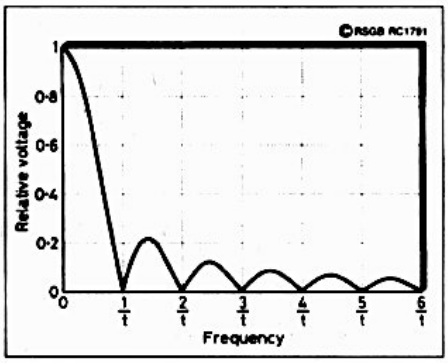

Fig 2. Envelope of Harmonic Comb Spectrum

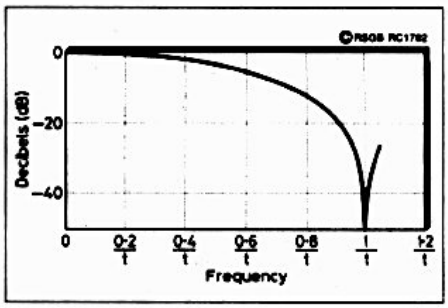

Fig 3. Lowest Frequency Lobe Of Harmonic Comb Spectrum Y axis is logarithmic

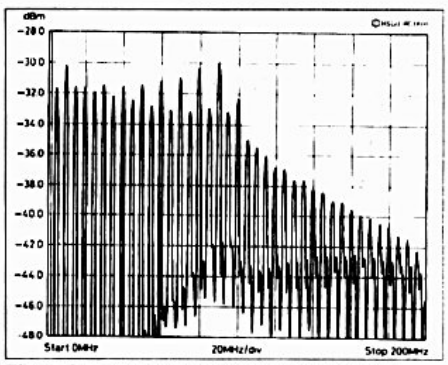

Fig 4. Spectrum Analyser Plot of 5 MHz Pulse Output

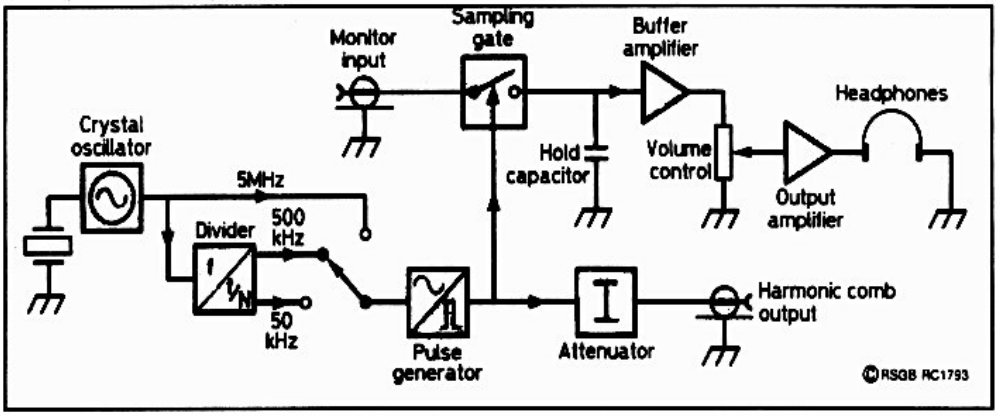

Fig 5. Block Diagram.

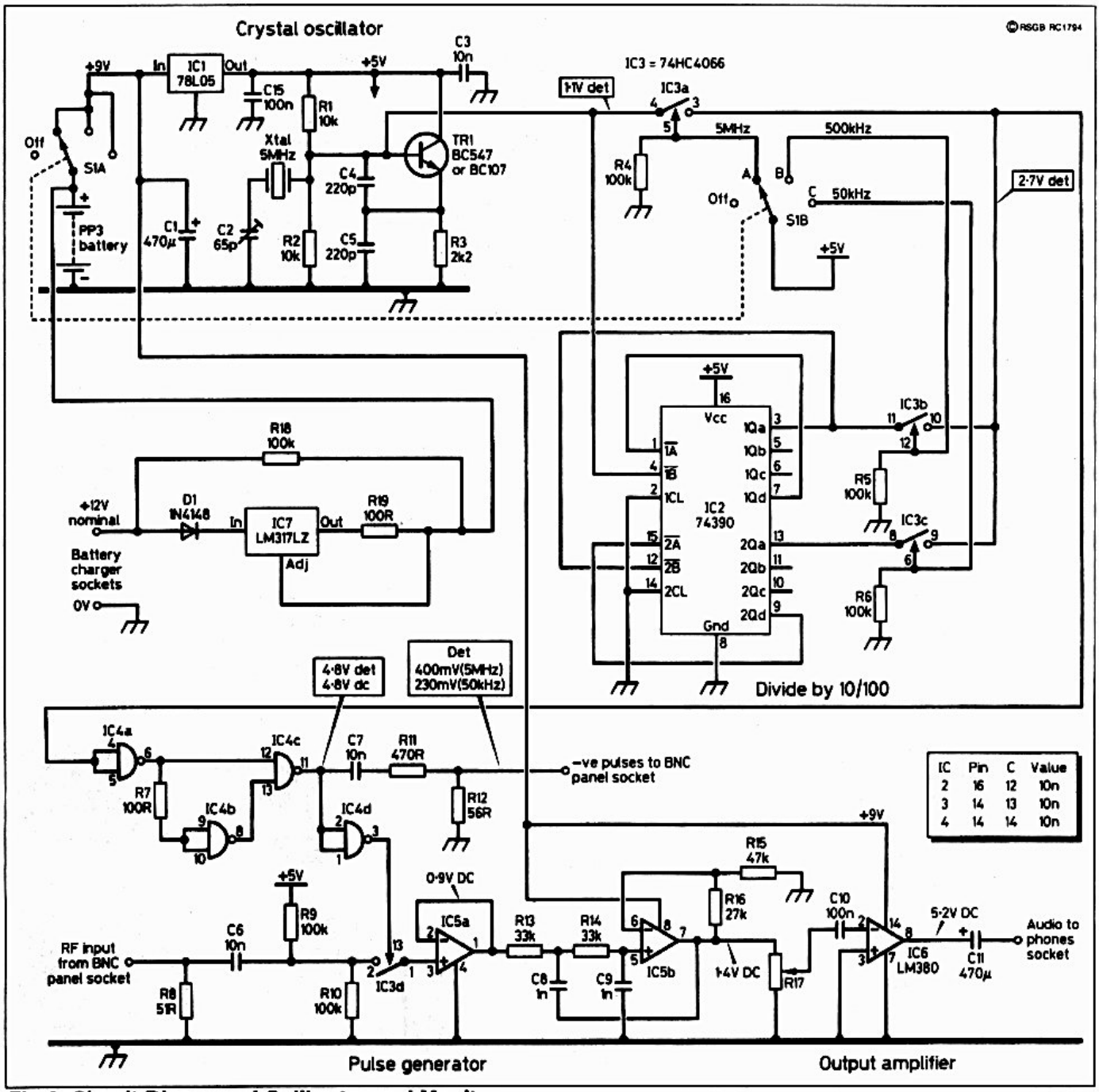

Fig 6. Circuit Diagram of Calibrator and Monitor.

TECHNICAL ABSTRACTS

continues

Component Bending Jig

Loading printed circuit boards with components can be much easier if the component leads are bent to match the hole spacing used. Some parts come already formed but many are not.

In the *In Practice* column of Ian White G3SEK in the June 1998 edition of RadCom a simple component lead bending jig appeared. The idea is to use a piece of perforated laminate as a jig. The jig is shown in Fig 7.

The board is cut into a stepped pattern as shown to accommodate the various component sizes. The common 0.1-inch hole spacing board gives a convenient range of sizes. The example shown provides for spacings from 0.2 inch to 0.6 inch.

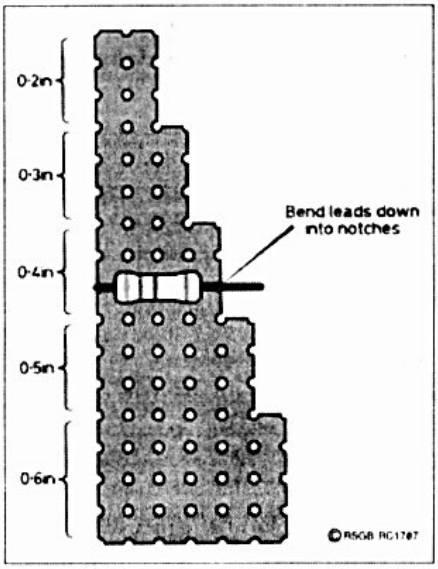

Fig 7. Component Bending Jig.

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CLUB NEWS

Send your club news and events to Club News

Central Highlands ARC of Tasmania Comes North

The small town of Dargo – a little gem – is nestled in the foothills of the Australian Alps and has been chosen for the inaugural visit (raid) into the North Island. A strong contingent of VK7 type CHARCT members and partners will use various means to cross Bass Creek and generally converge upon the said township.

All this will start on Friday 26th February 1999 and finish Sunday 28th February. Rather than keep all the fun to ourselves we extend an invitation to all amateurs and radio enthusiasts to come and join us.

Activities will include general sight seeing, winery visits, four-wheel drive trips, fishing, some radio related events and telling lies around the campfire. We also hope to have a couple of trade displays on site so you can check out some of the latest gear.

Activities will be centered on the Dargo Caravan Park, owned and operated by Tom and Rosemary Freeman.

Planned call-in frequencies are 3.585, 7.115 and 146.45 using the club call VK7CHT – suitably qualified operators being present. We expect to be monitoring all frequencies from mid morning on the Friday 26th.

So hook up the van or chuck the tent in the boot (don't forget the esky) and come join us. Sites are available within the park for either. Some cabin accommodation is available if you get in early.

For site bookings and general inquiries contact Claureen (VK3LCM) or Dave (VK3JKY) on 03 5977 4439 (AH) or email: ttssys@peninsula.hotkey.net.au.

Central Coast Field Day

Don't miss Australia's biggest and best exhibition and sale of Radio and Communication equipment at the Central Coast Field Day on Sunday, 28th February 1999 at Wyong Race Course, just one hour north from Sydney.

The country's major electronic equipment traders will be there with special field day bargain prices and tons of disposals gear will be on offer in the flea market. See many exhibits and displays from radio and computer clubs and other groups with interest ranging from vintage radio to packet radio and satellite communication.

Wyong Race Course is opposite the Wyong railway station. Gates open 8.30 a.m. wet or fine with undercover displays and trading. Admission: Adults $10.00, Seniors and students $5.00, children under 12 free.

For more details visit the site: www.ccarc.org.au or phone (02) 43402500.

Urunga Radio Convention 50th Birthday this Easter

The Urunga Radio Convention will be held at Urunga again this year at Easter. The fiftieth convention was very successful and the fiftieth birthday of the convention will be celebrated this year. So come along and have a hunt for hidden TXs, buy some goodies from the tables of assorted gear new and used and celebrate the birthday of the oldest continuous running convention in Australia.

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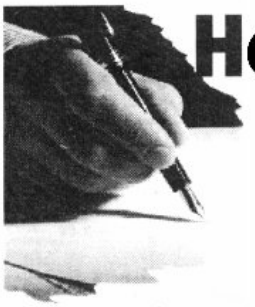
Urunga 1998 contestants ready to start hunting three hidden Tx on two metres pedestrian.

The 50th Urunga Convention – 1998. From left are Ray Hogan VK2BBI, Leath Martin VK2EA, Alf Webb VK2UC and Brian Slarke VK2ZCQ.



How to write for Amateur Radio

(Or any publication at all)

By John Nieman
Newsletters Unlimited

I HAVE YET TO MEET AN AMATEUR that can't talk the leg off an iron pot when put in front of a microphone.

But these very same people get an attack of the *"I couldn't do that syndrome"* when they are asked to write an article for the mag.

Of course you can write

Writing on a subject you know, for an audience that is interested, is easy.

It is just like constructing a radio project, as any written piece is made up of bits that are put together on a paper 'plug-in board' to make a whole that works.

Let's consider the two types of writing, technical and general interest.

General Interest or Feature articles

Every single person has at least one general interest or feature story.

The general interest writing formula is just a case of arranging ***facts, quotes and anecdotes*** in such an order that the reader cannot put it down.

Start
with an anecdote to grab the reader.

Theme
State your theme. One paragraph.

Facts
Use some facts or quotes to explain your theme.

Anecdotes
Use another couple of light, bright examples to lift interest.

Facts
A few more facts and quotes.

Another anecdote

Pictures are great

Conclusion

Subject matter for AR

Anything at all that happens to an amateur operator, any interesting people you meet on the air or in the flesh is all the basis for a story.

Especially remember the golden rule: interesting subject matter makes interesting articles — *ordinary people doing extraordinary things or extraordinary people doing ordinary things.*

Interesting DX locations make good copy and provide a great pictures.

Local events that are significant for radio amateurs are also of great general interest, especially if the lessons or relevance can be applied nationally.

Tips to make features fly

- **Use your own voice and use words that you would use in conversation.**
  (Note that sentence. Only one word in the 13 has more than one syllable. Very easy reading, very easy writing)
- **Write directly and in the first person.** *I talked to Bob* is infinitely better than *a conversation ensued between Bob and myself*
- **Write big and edit yourself hard.** Having too much material initially is great. It means that you can prune back to a tight piece.
- **Include a picture**
  Get a picture into the story, the editor will love you, the sub-editor (who makes it all fit), will love you and many more people will read it.
- **Stick to your theme**
  Got another idea? Don't tack it on. Write another article

Writing Technical articles

(Sourced and updated from Bill Roper's 1992 AR article)

Amateurs love simple equipment construction and design articles Most will not build the project but will rather enjoy following the steps in their mind.

But someone somewhere will build the project so it must be technically correct or the mail will pour in or even worse damage or injury may result.

Reports of experimental procedures or equipment are always popular but remember that you are writing for a great range of skills. Gear your article at entry level rather than advanced, you are talking to amateurs, not engineers.

The Plan

Outline what you want to say, and what you want to get across.

For construction articles follow this format.

Introduction
"We are going to build a better mousetrap"

Theory
"This will remove mice more efficiently"

Construction
"First take a small nuclear device .."

Alignment and adjustment
"Now it is assembled, focus the laser beam on the mouse's ....."

Summary
"having built this better mousetrap....."

This is often referred to as

"
- *the tell them what you are going to tell them;*
- *tell them;*
- *then tell them what you have told them*"

theory of writing.

Tech Rules — OK

The general rules for interesting writing apply to technical articles.

- Use positive or direct sentences and talk in the first person rather than the third.
- Start a new paragraph with each new thought. (Any paragraph that has more than forty words is probably too long.)
- Avoid abbreviations where possible

Specifically in technical articles

- Use subheads. Capitals and lower case, never all caps
- Check the work with the computer spell checker or dictionary
- Minimise the maths, They are not usually necessary in AR construction articles. The readers prefer practical projects designed and ready to build. Graphs are next best, maths are last.
- If a mathematical derivation is necessary, show only the steps that introduce new logic.

Abbreviations, symbols.

Follow the AGPS *STYLE GUIDE* a copy of which will be in your local library.

The common abbreviations are written: Hz, kHz, MHz, GHz, µF, pF mH, H, W, mW, µW V, mV, kV, A, mA, µA, dB, km, Ω, kΩ, MΩ.

Do not use full stops or pluralise these abbreviations.

Separate these abbreviations from the number, ie 10 MHz not 10MHz.

Modes of emission, and acronyms in general are capitalised AM, FM, CW, SSB, RTTY, ATV, RF, IF, DC, AC, RMS, VFO, AGC. The text flow should be informal, but keep away from *hammy* abbreviations such as xtal, XYL xmtr etc.

Find out how your computer does Greek symbols and use them. But always provide a hard copy print out of your text, in case the printer's computer has Ω where you have µ (On Macs the Keycaps under APPLE in the menu bar finds the way, on PCs in Word Insert>Symbol is the way)

Diagrams Illustrations and Schematics

Always do the drawings on separate sheets of paper and note them in your text. Do not paste them into the text.

We have draftspeople who can clean them up if necessary. But make sure that your sketches are correct, complete, neat, clean and readable.

Put parts values on the schematic and include a separate parts list. Use terms R1 and C2 etc. Label the drawings numerically; Fig 1, Fig 2, etc.

At the end of your article list the figures with a caption by each one. Put the article title, your call sign and /or your name on every piece of paper.

Photographs.

Good photos can make all the difference to the appeal of an article.

Nowadays standard colour prints taken with an automatic focussing camera and developed at the one hour shop are quite satisfactory. If you have a SLR, point the flash at various angles and take a shot at each angle, then select the shot with best definition.

Label each photo clearly, either by attaching a Post-it note with sticky tape to the back or, for preference, writing Photo (a) etc on the back or front BUT ONLY AT THE VERY EDGE OF THE IMAGE.

Photograph the completed project.

Cover Photographs

Any aspect is good, any colour photograph is good. See following page.

The last words on photos.

We have all sorts of photo manipulating ability with some computer programs so any photo that is in focus is a good one. Old scratched photos can be made like near new.

But pack them with a protective stiff cardboard.

Accompany the photo with a copyright release in the form. "I... of..., the copyright holder of this photograph(s) grant AR permission to reproduce it within their magazine at any time."

PC Board

If your project involves a PC board, send a positive of the board with your article. Separately sketch out the component layout. If the positive is not the same size as the board, tell us. Or submit as a Protel file or hard copy.

Submitting articles

Manuscript Submission

- Include a covering note itemising what you have included in the submission such as copy, schematics, photos, captions.
- Provide a brief biography, readers like to know a little about the writer. With articles of about 1000 words and up, include a headshot of yourself if you wish.
- Again, name and or call sign on every separate piece of paper.
- Number the pages.
- Laser print is better than ink jet, which is better than ribbon print, which is better than hand block capitals, which is better than script.

Electronic submission.

Formats

If you are writing your article on a computer or word processor please provide an electronic file.

We prefer Word files but .rtf and ASCII .txt files are also acceptable. If you cannot save in one of these formats, save in your format but note the type on the disc and on the manuscript cover.

If you have electronically generated diagrams, please provide these saved in as many formats as you can fit in the disc. Tiffs and EPS are usually OK.

Media

3 inch or 5 inch floppy, CD, Iomega Zip or attachments to email are all very acceptable.

Absolutely critical: Please provide a hard copy of all items printed *exactly* from the discs or files you supply us.

The editors will arrange publication of your article at the earliest possible opportunity. This may be a little time, as we may wish to include it as a special feature, or 'balance' a particular issue.

Please submit all material to

The Editor ***Amateur Radio***
PO Box 2175
CAULFIELD JUNCTION VIC 3161
email armag@hotkey.net.au
Tel: (03) 9528 5962
Fax (03) 9523 8191

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Thought for a feature

Any amateur who was monitoring the recent massive Sydney-Hobart yacht race rescue operation has the makings of an excellent story for *AR* in February.

How you felt as it all unfolded, how it happened over the air is all rivetting stuff.

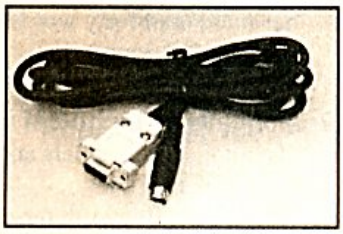
If you were involved, either in race or rescue, even better.

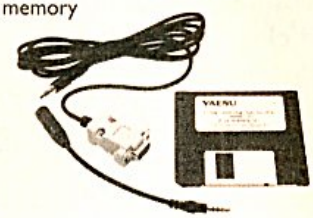
Call either Bob Harper, Bill Rice or Newsletters Unlimited (all details page one) if you were 'there' in body or listening and we can assist you to put it together for the magazine.

GET READY FOR 99'

Advanced Data Management Software

An advanced way to program many of the functions of Yaesu handheld and mobile transceivers. Each package consists of an interface that plugs into the serial port of a PC and connects to the transceiver via its microphone socket (for handhelds) or its Packet socket (for mobiles). Also provides easy-to-use 3.5"(inch) PC software with pull down menus that allow for programming and naming of memory channels, selection of output power, CTCSS tones, scan and battery saver operation, plus much more.





ADMS-1D suits FT-10, 11R, 50R/RD, 51R, VX-1R D 3753

ADMS-2D suits FT-3000M, 8000R, 8500, 8100R D 3759

$89.95 ea

LP-1300 Log Periodic Yagi

The Maldol LP-1300 is a Log Periodic Yagi beam antenna designed to provide useful gain across the 100 to 1300MHz range. Ideal for scanner enthusiasts and ham operators needing a directional wideband antenna. Consists of a 17-element Yagi with a special feed system providing low SWR (less than 2.0:1) across the 100-1300MHz range.

Gain:	6.0dBi to 10.0dBi
Boom length:	1.46m
Suitable mast:	28-60mm diameter
Max wind speed:	40m/sec
Max power:	500W
Connector:	SO-239

D 4828

$269

3-15V 25A Heavy Duty Power Supply

This solidly built benchtop power supply provides current of up to 25 amps ICAS at 15V, 20 amp continuous at 13.8V and lower current at lower voltages. It has front panel metering, plus high current banana-style and low-current output connections. An internal heatsink and thermally-switched fan provides cooling without protrusions in the metal case. Specially modified for more reliable long-term operation, it uses a rugged 50 amp bridge rectifier and trifilar transformer. Also provided is extensive overload protection through dissipation limiting circuitry for the pass transistors, a 30 Amp instantaneous current limit, AC mains circuit breaker, a transformer thermal fuse and fused auxiliary secondary winding.

D3800

$299

Yupiteru MVT-9000EU Deluxe Scanner

The Yupiteru MVT-9000EU is an amazing new Japanese handheld scanner that provides wide 531kHz to 2039MHz frequency coverage, a large and informative backlit LCD screen and excellent sound quality. All-mode reception capabilities are provided, (FM, W-FM, AM and SSB modes) plus there are 18 selectable step rates between 50Hz and 125kHz to allow the best tuning choice for the signals being listened to. For easy storage of popular frequencies the MVT-9000EU provides 1000 memory channels (20 banks of 50 channels each) which can store frequency step, reception mode, as well as the Attenuator setting. Selected memory banks can be scanned to check on activity at a rate of up to 30 channels per second. Search operation is provided across 20 banks, with 500 Search Pass memories provided to 'lock-out' unwanted frequencies for more efficient Search operation.

D 2797

Other features include:

- Inbuilt ferrite rod for AM broadcast band reception
- A Band Scope function allows checking of adjacent channel activity, with two selectable Scope bandwidths. Using the Marker mode you can substitute the centre frequency of the Bandscope with a movable marker, so you can see the frequency and hear the audio of specific adjacent signals
- 10 Priority channels
- 50 Autowrite memories to store active frequencies during Search operation
- Title editing for Band, Bank and Channel name is provided

Complete with NiCad batteries, AC plugpack charger, car cigarette lighter lead, antenna, carry strap and belt-clip.

YUPITERU **$999**

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JANUARY BARGAINS

Revex W570 HF/VHF/UHF SWR/PWR Meter

Top of the line performance! The W570 provides switchable 1.6-160, 400-525, 700-1100 and 1240-1300 MHz coverage, with measurement of 3 power levels (5, 20, 200W) and SWR. External UHF sensor uses N-type sockets, with remote mounting for easier cable connection to the meter. Measures 120 x 80 x 155mm. Made in Japan.

D 1377

$299

FT-50RD 2m/70cm Handheld

The Yaesu FT-50RD is an amazingly compact 2m/70cm Amateur band handheld transceiver which provides MIL-STD 810 shock and vibration resistance, super wideband receiver coverage, simple menu settings for most functions and compatibility with the optional Yaesu ADMS-1D software/interface package for PC programming of many functions.

Other features include:

- Tx 144-148MHz, 430-450MHz
- Rx 76-200, 300-540, 590-999MHz (cellular blocked)
- FTT-12 keypad provides Digital Voice Recording, DTMF paging, CTCSS/DCS scanning and CTCSS encode/decode
- 2m/70cm RF output: 2.5, 1.0, 0.1W standard, up to 5W with 9.6V battery or adaptor
- 'Omni-glow' LCD screen for easier night-time viewing 112 memory channels with 4 character alpha-numeric naming
- High speed scanning, 12V DC socket, Digital Code Squelch
- Dual watch allows monitoring of sub-band activity
- Direct FM modulation for better audio quality
- 5 battery saving system (includes Rx and Tx Save, and Auto Off)
- Rear panel clamshell battery pack
- Comes with FNB-40 slimline 6V 650mA/H Nicad battery pack, flexible 2m/70cm antenna and modified M-9626 AC plugpack adaptor for Nicad charging

D 3660 **2 YEAR WARRANTY**

YAESU **$599**

BONUS OFFER! Pay only half-price for a second Nicad pack when purchased with the FT-50RD. Limit one per customer. Applies to FNB-40, 41, 42 only.

FT-3000M 70W 2m mobile

An amazing new 2m mobile transceiver with up to 70W RF output. Rock solid with MIL-STD-810C shock and vibration resistance. The FT-3000M also has wide-band receiver coverage (110-180 and 300-520MHz), a dual band or dual in-band receiver facility and 1200/9600 baud Packet socket. Up front it has an impressive backlit alpha-numeric LCD screen. The FT-3000M has a total of 81 memories, as well as a Spectrum Scope mode that allows you to view activity above and below the current operating frequency, or among six programmed memories. A programming menu holds over 50 transceiver settings for easy 'set and forget' access and includes a scrolling text Help Guide. Twin fans provide optimum cooling during long transmissions for greater component reliability. The FT-3000M is supplied with an MH-42A6J hand microphone, DC power lead and instruction manual.

Specifications

Frequency range:	Tx 144-148MHz, Rx 110-180, 300-520, 800-824, 849-869, 894-999MHz
RF output:	70, 50, 25, 10W
Sensitivity:	0.2uV (main Rx), 0.25uV (sub Rx)
Dimensions:	140 x 40 x 180mm (WHD)

D3700

$699

HAM SHACK STORES

NSW • **BANKSTOWN POWERHOUSE** Christies Homemaker Ctr, 173 Canterbury Rd **9793 9677**
• **NORTH RYDE** Cnr Lane Cove Rd/Waterloo Rd **9937 3355**
• **SYDNEY** 125 York St **9267 9111**

VIC • **CARNEGIE POWERHOUSE** 1048-1054 Dandenong Road **9569 2644**
• **MELBOURNE 246 Bourke Street** **9639 0396**
• **SPRINGVALE Springvale/Dandenong Rds** **9547 0522**

QLD • BURANDA 170 Logan Road **3391 6233**

SA • ADELAIDE 252 Pulteney St **8232 1200**

WA • **PERTH** Raine Square, 125 William St. **9481 3261**

Amateur equipment only carried in Ham Shack stores, but may be ordered by all Australian Dick Smith Electronics stores and authorised stockists.

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B 3672

The Amateur Radio Cover Photo Quest

Amateur Radio magazine has an Amateur Radio related photograph on the front cover of each edition.

Currently the stocks are running low and although there are a few remaining they are quite similar. Almost all that we have are either a man up an antenna mast or a sunset with a silhouette of an antenna system. As such I am negotiating for a sponsor to provide an incentive for each photo published on the cover of AR.

It may be a roll or two of film or something similar. I'll confirm the nature of the incentive in the next issue but promise that there will be something worthwhile in it.

So here are the conditions;

1. The photographs must have an Amateur Radio interest such as famous/prominent amateurs, equipment (especially Home Brew), or events such as hamfests and competitions, Jota, John Moyle Field Day etc.
2. You must own the rights to the photograph and be prepared to allow Amateur Radio Magazine the right to publish the photograph. Eg. Attach a piece of paper with the statement: "I, [your name], the copyright owner of this photograph, grant Amateur Radio Magazine the right to publish this photograph at any time and in any manner they see fit." Then sign and date the statement immediately below.
3. All photographs should be captioned with the following information: who took the photo, where and when it was taken, what the subject is and who is depicted in it.
4. The photograph must be submitted as a colour print at least 3" by 5". Photographs should be clear, well focused and with good contrast. Avoid background clutter, poles spouting from ears etc.
5. All photographs will remain the property of the WIA and will be kept as the beginning of a photographic collection.
6. Photographs will be assessed on their content, quality and appeal. The selection of the photographs will be based on publication needs and not necessarily on technical merit. The publication committee, Editor and Production Manager will have the final say on the selection and correspondence will not be entered into.
7. Photographs should be sent to Bob Harper, PO Box 288, Beerwah 4519 and the envelopes should be marked with the words "Photographs – DO NOT FOLD"

So please get out that camera and start shooting. Look through your old snaps and perhaps send us a copy. Minor damage such as scratches, fading and other problems may be fixed digitally by myself and particularly if the photo is of historical significance should be repaired and kept on record. Photographs currently held are also eligible, please advise whether you want them included or returned as originally agreed when submitted.

Cheers for now, Bob Harper VK4KNH. **ar**

ALARA

Christine Taylor VK5CTY
16 Fairmont Avenue, Black Forest SA 5035

Combining Hobbies

Marilyn VK3DMS combines her two hobbies of amateur radio and stamp collecting in a special way.

The prize-winning collection of stamps she was asked to display and discuss at a recent meeting of the Royal Philatelic Society of Melbourne, is based on stamps and postal material that together tell the story of radio. This sort of collection, called a thematic collection, can include telegrams, envelopes, postcards as well as stamps themselves.

"Radiomania", which represents eight years of work, includes a postcard with an advertisement for radio on it, several radio licences from around the world, and a Chinese stamp that illustrates gymnastics by radio. The most recent item is a pre-stamped envelope celebrating the Centenary of the opening of the Overland Telegraph.

For her talk and display at the Royal Philatelic Society in Melbourne, Marilyn was presented with a Certificate of Appreciation but she has won three National Awards and an International one with the collection. The only Award missing is the Gold medal. She hopes one day to add that item, or dot that particular "T" to bring the Gold her way. I am sure she will reach that peak, although her relative isolation in Mildura adds a degree of difficulty to her hobby, a point not missed by her Melbourne audience. Congratulations, Marilyn.

Maxie DJ4YL

As mentioned last month, Maxie and her sister Marila were recent visitors to Australia. The story of her association with Australia illustrates one of the marvellous aspects of our hobby.

Over the years Maxie's OM Heine DJ4HB developed a radio friendship with Syd VK3ASC. When Syd was in Munich in 1968 he visited Heine and Maxie. When Syd's radio friend Bill VK5FR (also VK5KW) was to tour Europe, Syd passed on Heine's address, as a consequence Bill and Sheila visited them in 1971 and again in 1975. They continued to keep in contact by letter and radio and had become good friends.

Unfortunately, Heine became a silent key at the end of 1990. Sheila didn't hear of this for a couple of months but when she did she wrote apologising for the delay and invited Maxie to come to Australia and to stay with them in Glenelg for a time. Almost on the spur of the moment Maxie decided to accept the offer. She had a contact with Syd and told him of her plans.

Syd immediately contacted ALARA in Melbourne, and Bill, ALARA in Adelaide, resulting in Maxie being able to meet a number of YLs during her first visit in 1991. While she was in Adelaide I offered to sponsor her into ALARA and in exchange I am sponsored into DL-YL. We correspond at intervals, mostly at Christmas. Fortunately Maxie's English is good. My German allows me to read magazines with the aid of a dictionary but no more.

Maxie and Marila have come to Australia twice since that first visit; in 1995 and again recently. They love our climate and wildlife and arrange their own tours so they see what they want to. So far they have seen some of Queensland (Syd is now VK4CST), the top of Western Australia, New South Wales (I mentioned the picnic with Dot VK2DDB and family) and toured parts of Tasmania.

In South Australia they loved the look around Kangaroo Island arranged for them by Bill and Sheila in 1995. This time they saw our bush shack near Swan Reach and visited friends they had made on one of their earlier tours, who live just out of Birdwood. These 'bush' trips are exactly what they love, as well as meeting the YLs and renewing friendships. Amateur radio is a great way to make friends!

Here in Adelaide, at one of our regular luncheons, they met again, Meg VK5AOV and Jean Shaw (a VK3 lady they had met there on the previous visit), Jean VK5TSX, Deb VK5JT, Joy VK5YJ and Deb's daughter Sarah. We were sorry we couldn't stay together longer.

Informal ALARAMeet at AHARS

As usual the ALARA ladies provided food and drink at the AHARS Buy and Sell. Many of the YLs in VK5 were there at some time during the day with a visitor, Marilyn VK3DMS, who almost considers herself as much a VK5 as she is a VK3 YL.

Altogether we had Jean VK5TSX, our State Rep., Tina VK5TMC, our Secretary, Deb VK5JT, Historian, Christine VK5CTY, Publicity Officer, and Marilyn VK3DMS, Contest Manager, all committee members, along with Meg VK5AOV, Jennifer VK5ANW, Yvonne VK5AYK and Mary Rodgers over from Rudall on the Eyre Peninsular. We are lucky in VK5 to all live in a small city so we are able to meet each other face to face, like this, quite often.

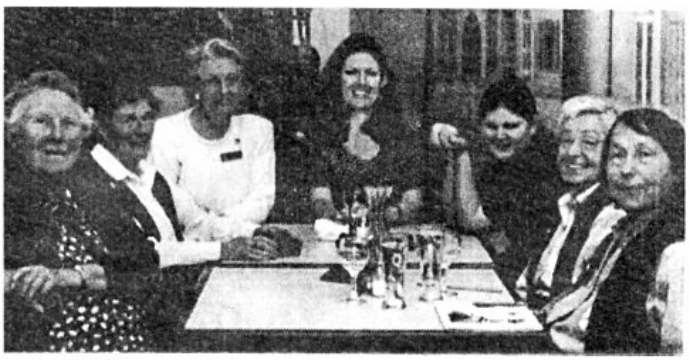
This year is the year of the ALARAMeet.

I hope you are all starting to plan your year so you can be in Brisbane at the end of September. Bev VK4NBC has planned a weekend of fun and interest plus a list of further activities for those that can stay longer. Don't forget to let Bev know if you are likely to be able to be there. She will send you out a preliminary timetable to whet your appetite further.

Help Please

If there seems to be a lot about the VK5 activities, I apologise. Please send me information about *your* activities so I can tell others.

AHARS Buy and Sell. From left: Tina VK5TMC, Jean VK5TSX, Marilyn VK3DMS, Deb VK5JT and Yvonne VK5AYK



Having lunch are Joy VK5YJ, Jean Shaw, Meg VK5AOV, Deb VK5JT, Sarah, Marila and Maxie DJ4YL

ar

POUNDING BRASS

S P Smith VK2SPS
Peak Street Bateau Bay NSW 2261 (02) 4334 7743

WE CAN START THE New Year by looking at some recently released American publications about telegraphy. Hopefully they will be released here in the near future.

The Books:

The Telegraph by Lewis Coe, a hard cover book with approximately 184 pages illustrated throughout. Excellent overview of the American telegraph system, cost US$28.50

Wireless Radio (also by Coe) hard cover and well-illustrated with 204 pages.

Further information from: McFarland & Co Box 611 Jefferson. NC 28640 Telephone 919 246-4460.

For Railroad enthusiasts:

Railroad Radio — hearing and understanding Railroad Communications & Systems by Vincent Reh. This is a 208-page book covering railroad radio history, modern rail commun-ications systems and system use. Byron Hill Publishing Co Box 197 Grand Isle VT 05458 Telephone 802 893-1315.

Railroad Telegraphy & the Railroad

This is a very interesting publication taken from newspaper articles from 1852-1913, First edition softcover large format, 85 pages cost US$9.95

Further information can be obtained from RWB/CG 8 Little Fawn Drive, Shelton. CT 06484.

Canadian Railway Telegraphy History by Robbie Burnet soft cover, 250 pages with 150 plus illustrations cost US$50.00. Further information: R G Burnet PO Box 40526 Dept W3 5230 Dundas St West Etobicoke, Ontario Canada M9B6K8.

Two items of special interest:

Signal Cipher — a monthly publication devoted to the study of early American military telecommunications. Subscription is US$6.00 per year. Signal Cipher 10 Walnut Ave, Wilmington. DE 19805-1144.

Dots & Dashes —the official publication of the Morse Club, Inc, pub-lished 4 times a year, covering many aspects of telegraphy. It is approximately 16 pages in newspaper format and costs US $14.00 Via First Class Mail. Further information from: Keith E Lebaron Secretary Treasurer 550 North Greenfield Drive Freeport IL 61032-4594 Telephone 815 232-2564.

I have been subscribing to *Dots & Dashes* for many years and can highly recommend it. If any readers are aware of any new publication on telegraphy I may have missed, and which may be of interest to our readers, please drop me a line and I will pass it on through my column.

Until next month, A Happy 1999 to all. See you on the bands.

73 Steve VK2SPS
ar

AMSAT AUSTRALIA

Bill Magnusson VK3JT
RMB 1627 Milawa Vic. 3678 Email: vk3jt@amsat.org

TMSAT-1 Opened for Amateur Radio use.

This satellite has been open for amateur radio users since late November. Chris Jackson, in announcing the opening, appealed for users to go easy on uploads and to treat the satellite as a resource for downloading the multi-spectral images from its cameras. Many such image files have appeared in the directory to date. As expected, the satellite has not always been turned on when over VK/ZL but hopefully this situation will be rectified as commissioning proceeds. Colin VK5HI has uploaded version 1.08 of his "CCD Display 97" program to the digital satellites UO-22, KO-23 and KO-25. This version permits the display of images captured by TMSAT-1 earth imaging cameras, and offers four improvements over his earlier versions:

1. Provides the correct viewing of thumbnails
2. Permits image enhancement on TM00xx00.IMI (350k) files
3. Allows previewing of .ACT files
4. Offers inclusion of embryo help files.

The program operates under Windows 95/98 only.

QSL Address for the Sputnik replica RS-18.

If you were successful in hearing the signals from the 40th anniversary Sputnik replica RS-18, you can send for a QSL card confirming this event. You are requested to send a reception report along with a self addressed envelope and two International Reply Coupons to the following address:

AMSAT-France
RS-18 QSL Manager
14 bis, rue des Gourlis
92500 Rueil-Malmaison
France

New Keps for AO-10 Satellite.

Stacey Mills and James Miller have calculated a new set of keplerian elements to replace those rather old ones appearing in the regular element sets.

Satellite: AO-10
Catalog number: 14129
Epoch time: 98334.41402
Inclination: 26.8570 deg
RA of node: 56.2190 deg
Eccentricity: 0.59993
Arg of perigee: 269.7500 deg
Mean anomaly: 218.2590 deg
Mean motion: 2.05837914 rev/day
Decay rate: 0.00 rev/day^2

Be warned however that this set may not automatically update. You may have to type them in by keyboard (like we did for all the satellites in the 'good ol' days'). Just alter the elements one line at a time and ignore any that aren't in the list above. It worked fine in my case and the auto-track system seems to find the satellite in the right place.

Six-Monthly Update of Amateur Radio Satellite Activity.

Here is the situation of ups and downs current at the time of writing ie. early December 1998. Those readers with internet access can obtain the very latest news from the AMSAT News Service World-Wide-Web site. You may even like to arrange to have all the latest information sent to you regularly via email. This can be requested from the site.

RS-12

Uplink 145.910 to 145.950 MHz CW/SSB
Uplink 21.210 to 21.250 MHz CW/SSB
Downlink 29.410 to 29.450 MHz CW/SSB
Downlink 145.910 to 145.950 MHz CW/SSB
Beacon 29.408 MHz
Robot Uplink 21.129 MHz Downlink 29.454 MHz

Last reported to be semi-operational, beacon only.

RS-13

Uplink 21.260 MHz to 21.300 MHz CW/SSB
Uplink 145.960 MHz to 146.000 MHz CW/SSB
Downlink 29.460 MHz to 29.500 MHz CW/SSB
Downlink 145.960 to 146.000 MHz CW/SSB
Beacon 29.504 MHz
Robot Uplink 21.140 MHz Downlink 29.458 MHz

National co-ordinator:
Graham Ratcliff VK5AGR
Email: vk5agr@amsat.org

AMSAT Australia net:
The AMSAT Australia net is held on 80 and 40 metres LSB each Sunday evening.
During daylight saving time in South Australia the net is on 7068 kHz +/- QRM with an official start time of 1000 UTC (with early check-ins at 0945 UTC).
During the rest of the year, the net is on 3685 kHz +/- QRM with an official start time of 0900 UTC (with early check-ins at 0845 UTC).

AMSAT Australia newsletter and software service:
The newsletter is published monthly by Graham VK5AGR. Subscription is $30 for Australia, $35 for New Zealand and $40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:
AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Keplerian Elements.
Current keps are available from the internet by accessing the AMSAT FTP site, ftp.amsat.org and following the sub-directories to "KEPS".

Last reported in mode K, the RS-12/13 satellite has seen many recent changes in operation. Modes K, T, KT and simultaneous RS-13 operation have all been reported. No mode switching schedule has been forthcoming from the controllers.

RS-15

Uplink 145.858 to 145.898 MHz CW/SSB
Downlink 29.354 to 29.394 MHz CW/SSB
Beacon 29.352 MHz (intermittent)

Semi-operational, mode A, using a 2-metre uplink and a 10-metre downlink.

RS-18/Sputnik 41

Downlink 145.812 MHz FM Russian cosmonauts successfully launched RS-18/Sputnik 41 on November 10, 1998, during a spacewalk from the Mir space station. It remains in operation at the time of writing but may well be out of power or have re-entered the atmosphere by the time you read this column.

AO-10

Uplink 435.030 to 435.180 MHz CW/LSB

Downlink 145.975 to 145.825 MHz CW/USB

Beacon 145.810 MHz (unmodulated carrier)

Operational but no longer under ground station control. AO-10 is locked into 70-cm uplink and 2-meter downlink (mode B) operation. Within these constraints AO-10 continues to function well but is subject to periodic deep QSB. This can be partially eliminated by switching antenna polarisation. Strong signals have been heard even at apogee. Also note that the apogee is approaching its most northern point. From there the apogee will begin its slow migration southward. I have checked AO-10 around apogee and found the transponder to be quite useful. Good return signals with 20 watts uplink power. You have to play with the antenna polarisation to get best results. When closer in around perigee, the signal throughput is every bit as good as it was in the early days of AO-10 operation.

AO-27

Uplink 145.850 MHz FM

Downlink 436.792 MHz FM

Operational, mode J.

As I have received no reports to the contrary it seems that this satellite is only switched into amateur radio service whilst over the northern hemisphere. Please let me know if you hear anything from this satellite.

FO-20 JAS-1b

Uplink 145.900 to 146.00 MHz CW/LSB

Downlink 435.80 to 435.90 MHz CW/USB

Operational. FO-20 is in mode JA continuously.

FO-29 JAS-2

Voice/CW Mode JA

Uplink 145.900 to 146.00 MHz CW/LSB

Downlink 435.80 to 435.90 MHz CW/USB

Digital Mode JD

Uplink 145.850 145.870 145.910 MHz FM

Downlink 435.910 MHz FM 9600 baud BPSK

JAS-1 appears to be in mode JA (voice mode) continuously. Trouble has been experienced commanding the satellite since it entered full sunlight some time ago. This situation was expected to improve when eclipses began again in December.

KITSAT KO-23

Uplink 145.900 MHz FM 9600 Baud FSK

Downlink 435.175 MHz FM

Operational. Aside from the now common situation of overheating when orbiting in full sunlight, KO-23 has been giving excellent service. Some reports indicate the downlink to be off frequency. I cannot confirm this from my own observations. It always seems to spot-on when I check the frequency.

KITSAT KO-25

Uplink 145.980 MHz FM 9600 Baud FSK

Downlink 436.50 MHz FM

Operational.

UO-22

Uplink 145.900 or 145.975 MHz FM 9600 Baud FSK

Downlink 435.120 MHz FM

Operational.

OSCAR-11

Downlink 145.825 MHz FM, 1200 Baud AFSK

Beacon 2401.500 MHz

Operational. The mode-S beacon is on, transmitting an unmodulated carrier. Telemetry indicates that it is only delivering half power. This beacon is a useful test source for those testing mode-S converters prior to the launch of P3D. The 435.025 MHz beacon is normally off.

PACSAT AO-16

Uplink 145.90/145.92/145.94/145.86 MHz FM 1200 bps Manchester FSK

Downlink 437.0513 MHz SSB, 1200 bps RC-BPSK 1200 Baud PSK

Beacon 2401.1428 MHz

Operating normally. Has anyone heard this beacon? I occasionally get requests for information on weak signal sources for checking mode S equipment. It would be nice to know if this beacon has been heard in VK/ZL.

LUSAT LO-19

Uplink 145.84/145.86/145.88/145.90 MHz FM 1200 bps Manchester FSK

Downlink 437.125 MHz SSB 1200 bps RC-BPSK

Currently semi-operational. Downlink and telemetry only.

ITAMSAT IO-26

Uplink 145.875/145.900/145.925/145.950 MHz FM 1200 Baud PSK

Downlink 435.822 MHz SSB

Semi-operational. Telemetry downlink only.

TO-31 TMSAT-1

Uplink 145.925 MHz 9600 baud FSK

Downlink 436.925 MHz 9600 baud FSK

Operational although not always turned on when over VK/ZL.

Some BBS activity but mostly used for earth imaging via the multi-spectral cameras. Many image files in the directory.

GO-32 TechSat-1B

Downlink 435.325/435.225 MHz

Undergoing commissioning. The satellite is transmitting HDLC telemetry framed so a TNC in KISS mode will decode it. There is no continuous beacon. A 9600-baud burst is transmitted every 30 seconds for a continuous 3 seconds in length, currently on 435.225 MHz. Telemetry display software is available from the internet.

The following satellites are currently non-operational:

RS-16

Attempts to command the mode A transponder 'on' have been unsuccessful to date. At this time the RS-16 transponder is non-operational. The 435 MHz beacon (only) is operational.

DOVE DO-17

Downlink 145.825 MHz FM 1200 Baud AFSK

Beacon 2401.220 MHz

Non-operational.

WEBERSAT WO-18

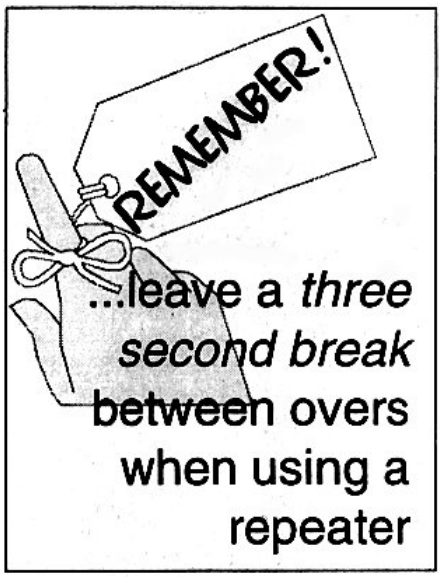
Downlink 437.104 MHz SSB 1200 Baud PSK AX.25

Non-operational.

SEDSAT

The controllers are experiencing problems with the uplink receiver of this new satellite which has not yet entered service. There is also a power supply problem which is making it quite difficult for them to achieve the necessary repairs.

ar



ARDF

Ron Graham, VK4BRG
PO Box 323 Sarina Qld. 4737

How does a Group or Club get started in fox hunting or ARDF? Are people really going to be interested in this aspect of the hobby? These must be common questions. In my opinion, it may be advisable to try the concept with minimal expenditure -just in case! If, it proves popular, and hopefully it does, then more money and time can be expended as the interest grows.

Hidden Transmitters

Known also as "foxes", these come in all shapes and sizes. Talking about the popular ARDF band, 2 metres, and keeping the above in mind, a handy talkie is the obvious starting point -provided someone has one available. It needs to run at "low power" so that the battery will last a reasonable amount of time. Some modern handy talkies have a number of power settings available so some experimentation should show the optimum setting. Rubber bands, including a couple of spares, are used to actuate the PTT button.

As an example of power requirements, I often use 20 mW foxes and find that they provide sufficient signal for a range of 300 metres over slightly undulating wooded terrain. This is with a "rubber ducky" antenna and with the fox standing on the ground. The receive equipment is, what I consider to be, an average "sniffer" receiver/beam combination. I think this sort of range is all that is initially needed to explore possibilities, gain experience and have some fun locating hidden transmitters.

If needed, that range can be extended by:-

a) Using a "better" antenna -say a 1/4 wave or 5/8 wave vertical.

   These naturally give vertical polarisation. Should horizontal polarisation be desired, which is stipulated in the International ARDF Rules, then "turnstile" or "halo" antennae are good choices.

b) Elevating the fox or just the antenna if it's separate, above ground level. In many instances, a suitable tree may be utilised - though in some respects, I am wary of dense foliage as I visualise it "sucking up" RF energy.

Security

This should be considered early in the exercise. The person loaning the fox, in this case his "possibly best" handy talkie, to the group would not be impressed if some third party just happened to find the fox before the actual hounds, or participants. Particularly so, if that third party just picked the fox up and disappeared with it! This could be the case in a public or semi public area -you may well be observed hiding the fox, that person investigates after you have left the area and the rest is a matter of luck!

There are two ways to resolve this potential problem. One is to use private property or a sufficiently remote area to be away from other people. The other is for someone to "stand guard" over the fox. That person should try to remain out of sight of the hounds for as long as possible and should not remain too close to where the fox is hidden -just keep the area in view. This person can also act as the judge and be responsible for collecting the fox at the conclusion of the event. They are also often the source of lots of humour after the event as they were in a position to observe the antics of the hounds!

...this was observed by someone else on the beach, who...collected the fox, took it back to where they were sunbaking, and placed it under their towel

This session on security gives me an opportunity to tell a story of how events may, at times, work out to our advantage. Although I have attended a number of the Mission Beach "do's", organised by the Townsville and Cairns Clubs, this event occurred in my absence, so it's a second hand account.

Normally some fox hunting activity takes place at these events and on this occasion the fox was hidden on or close to the beach. Apparently, this was observed by someone else on the beach, who went and collected the fox, took it back to where they were sunbaking, and placed it under their towel or clothing - naturally thinking the device was now theirs. Unfortunately for them, they didn't know just what the device was and that it was still turned on. Hounds eventually arrived on the scene and located the fox; much to the amazement of the "new owner" I gather. It was reported that some discussion then took place as to who was the real owner, with the amateurs eventually winning!

Further Fox Considerations

When one wants to get more serious and think of dedicated foxes, there are a number of requirements to be considered. In order of priority, and in my opinion, these are:

a) Generate some RF.
   i) what frequency?
   ii) power level?
   iii) type and size of batteries?
   iv) antenna arrangements/type?
   v) physical size/arrangement?
   vi) antenna type?
b) Modulation.
   i) AM or FM?
   ii) tone/frequency?
c) Carrier switching.
   i) run continuously?
   ii) switched?
   iii) if so, how?
   iv) at what period(s)?
d) Identification.
   i) incorporate?
   ii) how?
   iii) details?

The above may be considered as a good starting point and, hopefully, promote further thought, challenge and comment. Naturally, one needs to carefully consider their Groups actual requirements. Incorporating lots of "frills" may be "nice", but adds to the complexity and expense. They become necessary as one gets more serious, but one may start with something quite simple. Lots of potential for some "home-brewing" here!

Overseas Events

http://www.210.100.211.57/ardf/index.htm is the new URL for information regarding the Korean event in mid June 1999. I note that invitations to the combined Region 2 and Friendship Amateur Radio Society event have been posted to Region 2 Societies. Anyone from this part of the world would also be made welcome in Portland, Oregon, USA with the event running from 10th to 14th August 1999.

Melbourne ARDF

It was pleasing to note, via the melb-ardf Internet reflector, they had an attendance of 36 people to an ARDF event held in November -as this column is being written. It appears the organisers have managed to attract some newcomers, plus the involvement of families in the event. Hopefully, the events will gain in popularity and their success may prove an inspiration to groups in other parts of the country.

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SPOTLIGHT on SWLing

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Millennium changes

1999 has begun and the twentieth century rapidly ends. Officially the next century does not start until January 1 2001. The year 2000 has caught the public imagination with many being misinformed that it is the beginning.

Oldest station closes

At the end of last month, a significant part of radio history ended when Scheveningen Radio PCH closed down after 94 years of continuous service to the maritime industry. The station opened on December 19, 1904 and was originally located in the Dutch province of that name.

On the anniversary of its inauguration and to commemorate its closing, a special station PA6PCH was heard on the amateur bands. Also Dutch amateurs were permitted to work PCH cross band. However this privilege was not available to other amateurs because it would be against the radio regulations. PCH must certainly have been the oldest continuous wireless station until it closed down.

The American coast station WCC, formerly at Cape Cod, started in 1914 although I believe that there was an earlier station nearby. I do wonder if the historical nature of PCH's contribution may perhaps see the station continue as a wireless museum. There is a Swedish alternator on about 17 kHz dating back to 1924, which is annually re-activated.

At the end of this month, CW will no longer be required on HF and will be phased out at 2359 UTC on the 31st. This will see many signals disappearing yet the callsigns will remain because they will still be using digital modes and voice traffic. I also believe that the UK Government wants to phase out HF maritime communications and close the Portishead Facility. GKA was the callsign and it too was one of the originals. The station was located in the beginning near Bristol but it has since had several relocations. The operations of many HF coastal stations were centralised and most were referred to as Portishead Radio. HF telephone traffic has been closed for several years and only digital modes remain.

Who will occupy the channels?

Naturally a question arises. Who is going to occupy the vacated channels? Already numerous pirate operations have crept in and it is going to be difficult to police the spectrum. The majority of these operators are on SSB and utilise either discarded marine sets or modified ham transceivers. Most of the unofficial signals I hear seem to be in SE Asia. In Europe, there are many pirate operators congregating around 6.7 MHz and causing severe interference to HF aeronautical communications.

Ten metres has for some considerable time experienced pirate operations, usually on narrow-band FM. Often signals from them are more numerous than the legitimate amateur operators. Apparently the 10 FM repeaters have been copping severe QRM from these intruders.

I did read in a recent "DX Post" that a Queensland listener sent some tapes to a language laboratory and ascertained that these were Thai truckers.

Excellent signals from Tokyo and Hanoi

One of the easiest stations I received when I first started listening to shortwave was Radio Japan. For many years they were regularly on 11850 at 0930 UTC. Now Tokyo is heard during our daytime on 17685 kHz with English to Australia. Signals are excellent from 0100.

I also recently noted that Vietnam recently vacated 10060 kHz after being there for many decades. The frequency drifted about but it was easier to hear Hanoi with its domestic service than the external service. Today it is still hard to find, although in winter, you can hear Hanoi via Siberian sites, broadcasting to North America.

I recently had a new random length antenna erected, thanks to the assistance of four local hams. This dipole replaced a 5-band vertical that was temporarily in use when I suddenly had to relocate in April 1996. I am now able to hear better and also I discovered that a coaxial switch was faulty. I would like to thank VK7HAW, VK7CC, VK7ZOO and SWL Tony Simmonds for their assistance.

I would also like to thank Bill Roper, VK3BR, past producer of this journal, for his advice and assistance with this column. That is all for this month. I hope that the summer months are interesting listening. If you have any queries you can contact me at the above address or via e-mail at robroy@tassie.net.au or robinharwood@netscape.net.

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VHF UHF AN EXPANDING WORLD

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One metre days

This has been an interesting subject that periodically rises again as the result of new information. In this respect I recently received a letter from **Max Meallin VK3ATK** of Bendigo, in response to my article on the subject in November 1998 AR, which followed information from Ken VK3AFJ.

Max said he has known Ken for nearly 50 years, both on the air and personally, mentioning that he and Ken had contacted each other regularly on the one metre band in the 1950s.

Max wrote: *In 1954 I constructed a modified version of the Radio and Hobbies 288 Meg. Modulated Oscillator. I used over 300 volts on the plates of the 7193s. They did not last long unless the overs were kept short, but there was a plentiful supply of them at disposals stores.*

The one metre band was a good band for experimenting in those days and we had a lot of fun while that band lasted. Ken acquired a large quantity of bronze welding wire and gave me sufficient to construct a 16-element phased array that I fed with 300-ohm ribbon. With this beam I worked a portable station in the Pentland Hills which is well on the way to Ballarat.

The following contacts were made: 1953: Austin VK3ALO 1954: VK3s Bert AAF, Ken AFJ, Harold AHC, Geoff AHS, Max ALK, AMT, MB, John PL. 1957: VK3s Eric ADU, AFJ, Mac QO, Bruce VF, Bob ZAN, David ZAQ. 1958: VK3s Charlie AAK, ADU, AFJ, Wally AHZ, ALK, Geoff AUX, IE, OM, QO, VF, Ray ZAE, John ZAI, Bob ZAN, ZAQ, Jock ZDG, Frank ZDW, Wally ZDZ (now 3AHZ), Garth ZFA.

It is interesting to note that in all reports so far received on one metre operating, no contacts over extended distances appear to have occurred. Most were of the order of 50 to 100 km, no doubt due to the equipment used, usually relatively low power, small antennas etc. The 16-element phased array constructed by Max is about the largest to be mentioned so far. [My lowly antenna was a horizontal dipole but it provided strong signals to and from my mate 16 km distant. ... VK5LP] Thanks Max.

Beacons

Wally VK6KZ advises that the Esperance two-metre beacon has not been heard for a while but is believed to be operating. Albany is not on the air - it is to be re-located at the QTH of Tom Reid VK6TR; advice will be given when it is operating. The Cape Leeuwin beacons are ready to go but Wally so far has been unable to travel there to find a QTH.

David VK3AUU: *The Mount Gambier beacon is in here all the time with the antenna pointing at it. It is detectable with my beam on Adelaide, which on the second side lobe is down 20 dB and about the equivalent of listening on a dipole when I fire up the HAMVIEW program and have a look for it. This is fairly remarkable when you consider that the troposheric path loss is about 220 dB over that distance. My antenna needs a lot of work at present and I have no masthead preamp so my effective noise figure is around 3db. Also I have no rotator which means I have to climb the tower to turn it.*

There are several other beacons not regarded as 24 hour.

Wally VK6KZ reports that the new Exmouth beacon on 144.576 MHz was first noticed by Cec Andrews VK6AO at about 2310 on 29/11 and then copied by VK6KZ and Don VK6HK; it was through for about two hours by tropo. They were unable to trigger the repeaters at Geraldton or Exmouth - which is not unexpected with the advantages of CW over FM!

Referring to the same beacon, **Don VK6HK** reports that VK6RSX on 50.304 is almost always audible in bursts over the 1104 km path - presumably meteor scatter but could be aircraft specular reflections too. He has been looking at the signal using one of the DSP software packages which allow 2 Hz resolution for Doppler effect and has observed up to 50 Hz shift, but usually none. The path is exactly along the route taken by many of the international flights from Asia.

Leonids Meteor Showers

Note: Unless otherwise stated, all times for this section are for the UTC day of 16/11, or the local morning of 17/11 and on two metres.

Rod VK4KZR: 2057 VK3AFW 5x7, 2059 VK2TWR 5x4; heard VK3TMP, VK3AJN, VK2ZAB, VK2KU et al. Band still very active at 2135.

Ron VK4BRG: Heard/worked: 2049 VK1BG heard 3 times, called, no response heard; 2149 VK2KU? gave 5x2 report, no report received; 2154 VK2TWR 5x1 received 5x7 good contact.

Six metres: 2118 VK2HO John, Lismore gave 4x1, received 5x1; 2122 VK2HO lot stronger ... heard 5x7 direct path.

17/11: 0004 VK2KU, 0025 Gordon VK2ZAB, both good contacts, 0026 VK2ZAB 5x9.

Ron VK3AFW:

2045 VK4TZL	5x6	5x5
2046 VK2FZ/4	5x5	5x5
2054 VK1BG	5x7	5x3
2054 VK2KU	5x4	5x3

2100-2110 Called VK8GF after phone call to Jeff. Nil heard. Listened for VK8 beacon frequently but nil heard.

2126 VK2TWR	5x2	5x3
2126 VK2ZAB	5x4	5x3
2128 VK4BKM	5x5	5x5
2135 VK3TDV	5x3	5x1
2139 VK4KZR	5x2	5x2

2147 VK4RTT/b 549, heard whenever VK2FZ/4 was strong. ie 5x9+.

2148 VK2TWR	5x9	5x9

2215-2120 Looked for beacons from west - nil.

2228 VK2FZ/4	5x5	5x5
2232 VK1MP	5x5	5x6
2237 VK4ZBH	5x2	5x9 Running 4 watts.
2250 VK4JSR	5x5	5x7
2300 VK2FZ/4	5x9+	5x9+
2331 VK4KK	5x4	5x4

Many signals peaked up to 40 over 9 for short times. VK2FZ/4 and VK2FU were Q5 with my beam 90 degrees off them. The band wasn't open continuously, but there were many periods of five minutes or so when it seemed to be. In between there were quiet periods with occasional weak bursts. Adrian, VK2FZ/4, said the band was open two hours before I arrived. Max VK3TMP went mobile with a halo and worked VK2FZ/4, VK2ZAB, VK2KU.

17/11: 1730-1745 VK2DVZ — 5x5 incomplete; 1845-1900 VK5NY — 5x1 incomplete; 1900-1930 ZL3TY nil heard; 2000-2030 VK8GF nil heard; 2032 VK2TWR 5x1 5x2 aircraft; 2033 VK2ZAB — — worked VK3TMP; 2034 VK1DO 5x7 5x7 aircraft; 2110 VK2FZ/4 5x1 5x1 but not in Adrian's log; 2115 VK5NY calling and VK2FZ/4 responding; 2125 VK4KK 5x5 5x5; 2200-2209 VK4KZR 5x7 5x9; long burn wraps up sked after 9 minutes.

John VK3ATQ, *tells me that he worked VK2BA and half a dozen VK4s on six metres. Also active on six were Joe VK7JG, Norm VK3DUT, VK3YY, VK3GRL, VK3DY, and VK3BQS.*

▷

Note: All times are UTC

Congratulations to **Adrian VK2FZ/4** *for the first VK international meteor QSO on two metres. He worked ZL1IU immediately the first sked on 16/11 commenced at 1700. ie. complete in 10 secs. They repeated this three more times over half an hour. Today (17/11) it took 45 minutes to complete. I think Adrian should be awarded the title, Master of Meteors!*

18/11: VK3AFW worked Guy VK2SU on a random meteor burst on 144.1 at 2059, 5x2, 5x2. Max VK3TMP heard VK2FZ/4 a little earlier.

David VK2BA: *Thought that I should document the Leonids, from my perspective, in dark Megan near Dorrigo in northern NSW.*

Visual perspective: *Very disappointing, especially after all the mis-information on the TV and radio. For us, 30 km west of Coffs Harbour and at 2500 feet ASL, with a black sky and only slight cloud, we counted a meteorite approximately every five minutes, and in 1 1/2 hours of viewing from 2.30am saw only two really "juicy" meteorites with tail etc. The rest were just little streaks of light. In all, not much more than one would normally see at that time of night from a dark country hilltop.*

Radio perspective: *On six metres I found activity on 50.110 and in about one half hour from 1740, (4 am daylight saving time) I worked the following stations:*

1700 VK3ATQ 5x5 5x5, VK3WRE 5x5 5x9, VK3YY 5x1 5x1, VK3DUT 5x5 5x5; 1751 VK7JG 5x5 5x5, VK1MP 5x5 ??; 1752 VK3BQS 5x5 5x7; 1757 VK4 heard calling me but call not copied; 1808 VK3WN 5x2 5x3.

In all, an interesting morning. Pings were often long enough for several short two-way exchanges. The best signals were at 1809 (5.09 am local) when VK3BDL, VK3YY and VK3WN were all 5x9 and calling together.

Norm VK2XCI: *We were blessed with clear skies, absolutely no light pollution and a beautiful evening, perfect conditions for viewing! We stirred the kids up at 0230 DST and went bush in downtown Mount Hope (pop. 12).*

For those of you cursed with clouds, haze, rain and storms, you didn't miss too much. Besides the normal sporadic rate, the rate from the radiant was only about 10/hour. There were a few spectacular single events and one really spectacular fireball but by 0430 DST that was it! Not that I expected much more as the peak was to be 0700 DST, what did surprise me was that the rate didn't seem to pick up as the peak approached.

From 0430 to 0800 DST I had two metres running. There were a few pings on the Nimmitabel beacon lasting half to two seconds and nothing else heard on 144.100 etc.

Gordon VK2ZAB: *VK2FZ/p4 5x3 - heard in virtually every direction of the compass up to S9 for five hours. VK4TZL 5x1 - heard frequently for several hours up to S7.*

VK3TMP 5x2, VK3TDV 5x5, VK3AFW 5x3 - heard frequently up to S7, VK3AXH 5x3, VK4KZR 5x3, VK4JSR 5x3, VK4ZBH 5x4, VK3TMP/m 5x4 - heard frequently, VK3XPD 5x5, VK4BRG 5x7, - heard several times, this contact the longest distance - about 1390 km as the crow flies.

VK5NY 5x5 and VK5ACY 5x6; these two may have been Es rather than meteor scatter. There is no way of knowing for sure. Tried to talk a couple of stations into trying 432 MHz but was not sure whether or not they got the message. Anyway I tried 432.1 MHz - no joy.

Alan VK5BWG: *It was a "fizzer" here. Worth getting up and having a look but not the spectacular light show that it was made out to be. As for radio ... well, I must get my antennas back in the air!*

Roger VK5NY: *Heard a number of stations on two metres SSB starting 0012 - VK4s, VK2s. Seems like Es but could be the beginning of the Leonids? Still not sure, my time now 0400, can still hear signals on 144.100, short bursts can't identify.*

Visually a real non-event but a few good contacts on 144 MHz after sunrise at 2115 to VK1, VK2 and heard VK4, tropo to VK3TMP. Appears morning of the 17/11 (16/11 UTC) may have been the big day.

Chris VK1DO: *I have never seen such concerted enthusiasm. Lots of calling, CW and phone, lots of listening, beam turning and initial disappointment, partly confused by believing that I was hearing things. After giving up on ZL, I swung the beam north and northwest and the plethora of locals appeared. We had VKs 1DO, 1DA, 1VP, 1MP, 1ZQR, 1DC, 1BF, 1WJ, perhaps others.*

About 1740, monitoring where I thought the VK4 beacon would be, using the sub-receiver in one headphone and 144.100 in the other, it all erupted. The strongest of the VK4s observed superb protocol in attempting to move off the calling frequency, but I think these were pretty short burns.

By sunrise, local time, I had only worked two VK4s. Later found Roger VK5NY chatting. I called him, received a response, gave a report and things crashed.

Then, the most astonishing series of contacts with various VK3 stations, many of whom I can normally work on aircraft, but for instance, Norm VK3DUT whom I haven't worked on 144 since he moved to Bairnsdale, was 5x7 and so forth. About ten strong VK3 contacts. The geometry suggests this wasn't meteor

Oceania Beacons as of 13/11/98 courtesy of JA1VOK Mobile Ham

50.014	V73SIX	RJ38	10W Loop	qsp V73AT 28.885
50.040	ZL3SIX	RE66	70W Beam	qsp ZL3TIC signs NW/NE
50.042	YB0ZZ/b	OI33	05W GPlane	qsp YB9ARA or YC0UVO.
50.0465	VK8RAS	PG66	15W X Dip	qsp VK8GF
50.0535	VK3SIX	QF02	15W Yagi	qsp VK3OT
50.0565	VK7RAE	QE37	20W X Dip	qsp VK7XR/VK3ATQ
50.057	VK8VF	PH57	100W Loop	qsp VK8AH/RH
50.058	VK4RGG	QG62	6W Vert	qsp 28.885
50.061	KH6HME/b	BK29	20W Dip	
50.065	KH6HI/b	BL01	50W halo	qsp KH7R 900m amsl
50.066	VK6RPH	OF88	10W Dip	qsp VK6HK
50.0775	VK4BRG	QG48	6W T/S	qsp VK4BRG 28.885
50.304	VK6RSX	OG77 ?	50W Omni	qsp VK6HK
50.306	VK6RBU	OF76	10W 3 el	qsp VK6HK Beaming Africa
51.029	ZL2MHB	RF80	10W Vert	qsp ZL2KT 28.885
52.325	VK2RHV	QF57	10W Vert	
52.3465	VK4ABP	QG26	4W Vert	qsp VK4ABP
52.370	VK7RST	QE38	5W Vert	Hobart 300m amsl
52.420	VK2RSY	QF56	25W T/S 240m amsl	
52.445	VK4RIK	QH23	15W Dip	
52.450	VK5VF	PF95	10W T/S 690m amsl	

JA and Regional beacons at 13/11/98 de JA1VOK.

50.010	JA2IGY	PM84	10W 5x8 GP
50.017	JA6YBR	PM51	50W T/S
50.027	JA7ZMA	QM07	50W T/S x 2
50.032	JR0YEE	PM97	2W Loop
50.037	JR6YAG	PL36	10W T/S
50.075	VR2SIX	OL72	7W 1/4 gplane - Hong Kong
50.480	JH8ZND/b	QN02	10W 5x8 ground plane
50.490	JG1ZGW	PM95	10W 7 el beaming South

scatter but more likely combinations of different propagation modes.

Heard Joe VK7JG, with the beam turning toward Sydney and made a technical mistake and thought of six metres and Joe VK4JH, sign of only two hours sleep. Heard Gordon VK2ZAB exchange reports only to realise I was looking in the wrong direction.

Followed by a number of signals in the SWW direction, peaked by Roger VK5NY who was inundated and shifted to .150 to be worked by VK1DA, VK1DO, Rod 2TWR, perhaps others. There were other VK5s initially audible, but the geometry was obviously leaning toward Clare Valley.

Barry VK3BJM: *While operating mobile 1000-1230 ESST travelling from Melbourne to Echuca, and 2000-2300 returning home, I heard one burst of "2FZ/4" and several bursts of morse on 144.1, using the halo. Oh, to have been about Tuesday morning.*

Alan VK3XPD: *Between 0700 and 1100 EDST the activity (for me) was magnificent. I have never heard so many "pings" and varied stations to work on two metres.*

There were VKs 1BG, 2FZ, 2ZAB, 2TWR, 4KK, 4IC, 4TZL, 4KZR and a few more that I probably missed. Signals were generally 5x2-5 but peaked 5x9 to me but often louder to Max VK3TMP and Ron VK3AFW. Some QSOs lasted more than 10 seconds.

Joe VK7JG: *The meteor shower produced the most exciting signals that I have ever heard on VHF. At one stage I thought that it was an E opening as the signals were most consistent. I worked VK 1, 2, 3, 4 and 7 on two and six metres, once again no signs of VK5. I was surprised at the number of amateurs that were active. I had my first contact at around 0330 am local time. My final contact for the day was with Gordon VK2ZAB on two metres, I had turned the linear off and was running only 50 watts.*

Rod VK2TWR: *At 2112 worked John VK4LP 5x9 both ways; 2113 VK4BKM; 17/11/98, three years to the day and to within one minute, as they say what goes around comes around.*

Andrew VK1DA: *1945 VK2FZ/4 5x5 559, 1950 VK4BKM 5x5 559, 2007 VK4FZ/4 5x5 5x5.*

Bob ZL3TY: *From 1900 all ZL and VK TV offsets were audible some at good strength. The VK7RAE beacon was in at around 519 between 2000 and 2100. Also audible were strong pings from the 48 MHz VK pagers.*

Mike ZL3TIC: *All morning signals were constant. I have never heard M/S like this, stations worked were: ZL3VTV/1 5x9, ZL2TPY 5x9, ZL2KT 5x9, ZL3NE/1 5x9, ZL2AGI 5x9, ZL2KT 5x9, and ZL1THQ 5x9, all on 50.110.*

Steve KL7SIX: *Today on the 45 MHz TV video an occasional meteorite in the right direction lifted the signal level from NZ over 15000 km away.*

In KL7 today (16/11) with AU Es always around it only took a burst or two to produce 5 or 6 minute burns on KL7NO at 250 miles and on VE8SIX at 750 miles. Steve KL7FZ had a burn on VE8WD 1500 miles away. But no lower 48 MHz at 2400 miles, just too far.

Here in the dark Arctic we saw long burn visual trails and actual smoke in the pure atmosphere trailing across the sky, not to be confused with vapour trails and ionised Stealth bombers.

Aurora

Wally VK6KZ: *Firstly no AU observations from over here. Several of us did look for propagation after reading the postings on the VK-VHF list. Guess our distance but more our latitude doesn't help.*

Spring Field Day

The Spring Field Day was held on the weekend of 14-15/11. Here are some of the results and comments.

Ron VK3AFW: *My QTH Mount Buller near Mansfield NE Vic. A very enjoyable Saturday afternoon. Due to battery problems I was restricted to 25 w on 6 and 10 w on 2 m. The 70-cm antenna problem proved to be too hard to fix hence 70-cm station had a nice restful day out.*

Portable stations worked: VKs 3WRE, 3BRZ 3XLD, 2TWR, 3BJM, 3DQW, 2XCI.

Best two metre contacts: (500-600 km approx) Andrew VK7XR Sheffield, Norm VK2XCI/p Mount Hope, Guy VK2FU Springwood, Fred VK2FWB Dubbo. Mount Gambier beacon heard all day but no VK5s.

Chas VK3BRZ: *What a disaster! I might have to complain to my WIA division about the weather they put on!*

David 3XLD and I operated from a site just on the northeast outskirts of Geelong (a spot called Lovely Banks, some 50 metres asl, but a good view all around). We managed a few good contacts, including VK7JG (QE38) and VK3BJM (QE23) on 1296.

More interesting though was David's QSO with Alan VK3XPD on 5760.100 MHz, distance about 60 km across Port Phillip Bay, with optical path. Alan was running 4 W, and David only 5 mW from a VK5 kit.

I also had a meteor-scatter contact with Adrian VK2FZ/4 at 1848 (Sunday morning). We heard a number of good pings, and one was good enough - 6 seconds or so.

Norm VK2XCI: *The weather was more than kind and I had a most enjoyable Field Day Contest. I hardly look on it as a contest, more of a chance to sit high on a hill with the Wedge-tails for company and enjoy the hobby.*

The "round the clock" system of calling and listening seems to be a waste of time, I'll abandon it in favour of the "wild west" system of listen, point and shoot! It amazed me how often one fortuitous contact turned into an instant pile-up, sort of like every-one waiting for someone else to break the ice! No VK4s or VK5s.

Barry VK3BJM: *Weather turned out all right, at my mountaintop at least. Very pleasant!*

Highlights were: Working Norm VK2XCI/p for the first time (487km); working Mark VK2EMA, for the first time, on 2 m and 70 cm (609km); working Bob VK3ZL, on 2 m and 70 cm - Bob was running about 3 watts on both bands (distance 235km); hearing noises from the west and finding it was VK5NY discussing the lack of contest activity with some other VK5 - then pouncing to successfully extract a contest number, just as the propagation started to weaken!

Other pleasing contacts were Laeli VK2LO, Murrumbateman on 2 m; Joe VK7JG, in QE38 on 2 m (just failed on 70 cm); VK3AEF, Nhill, QF03, on 2 m; VK1s BG, MP and ZQR on 2 m; VK2TWR/p on 2 and 70 - unfortunately no go on 1296; and working Ralph VK3WRE/p, Gippsland, on all bands 6 m through to 23 cm, several times during the contest. Also worked on 1296 were VK3s XPD, TLW, KWA, BRZ/p, and XLD/p.

Six metres

16/11 1035 VK6RSX/b 50.304 heard 599 by JR2HCB

Mike ZL3TIC: *27/11: 2200 very strong VKTV 46.240 5x9+ also 35 MHz pagers 5x9, 2245 57.240, 250, 260 all 5x9, 2300 XE2UZL/b 5x9! 2310 XE1KK/b 5x9, both of these beacons were in for 1.5 hours!*

Called on 50.110, 125 and 130, other ZL3s calling were ZL3ADT, ZL3NW and ZL3AAU. Would be interested to know if anyone heard us?

2325 55.240 (zero beat) NTSC video up to 5x9. This was possibly mainland USA or Mexico. 2330 strong VKs off back of beam.

28/11: 0005 strong ZLTV from north 45.240, 250, 260, 55.240, 250, 260 all 5x9; 0035 ZL1WTT 5x9.

Grid Square League Table

Guy Fletcher VK2KU has indicated that he will pick up the Grid Square Table in the absence of anyone else offering to run it.

Guidelines

Submit number of grid squares claimed as worked on 144, 432, and 1296 MHz. No details of actual squares/stations required. Starting date for contacts: 1st January 1990 (as for WIA Awards). No distinction between modes (CW, SSB, FM etc.) at this stage - a square is a square. EME claims to be listed separately.

All squares claimed must be worked from locations within a single limited "region", which can be encompassed by a circle of radius 50 km. Entry is open to any VK, not just subscribers to VK-VHF. The Table of Standing's will be posted on this Reflector roughly every 3 months.

Updates to me at any time by email/mail (QTHR 1999).

Comments

If you move house to a new "region", you have to start again, though your old score still stands of course. Tough, but imagine if Gordon VK2ZAB and Chas VK3BRZ exchanged homes for a month.

The intention is to encourage portable operation (up to 100 km from home) to overcome the limitations of a home QTH, but not to an extent which confers an unreasonable advantage.

If you regularly go portable to a different "region", you can keep a separate tally for the /p operation.

If Eric (VK5LP) wishes to copy the Table into his AR column from time to time, that would be nice. [He will. ... VK5LP]

There is no minimum number of squares to start - you don't need to have 50 squares on two metres! Please enter at any level so that we may all enjoy watching the growth of your tally.

I note Chas's comments about reverse contacts back into one's home square with considerable sympathy, but I want to keep it as simple as possible.

If you're not into grid squares, that's fine, but my limited experience suggests that the need for a square (on 432 MHz) which ought to be more populated than it is can act as a healthy stimulus for getting stations back on the air.

We need at least 10 or 20 people on the list to make the whole Table worthwhile.

No correspondence will be entered into by me regarding the veracity of people's claims. If you want more details from someone, please email them privately and not through the Reflector. Dire punishment for transgressors!

Guy VK2KU guy@mpce.mq.edu.au

Chris Edmondson VK3CE advises: *I'll publish the Table in Radio and Communications, Guy, if you supply it to me in an appropriate text form. I'm keen to promote activity on the bands!*

The same offer has been made by me (VK5LP) to publish the Table in Amateur Radio magazine.

Ken Ellis G5KW

Major Ken Ellis, G5KW, the well-known pioneer 5 and 6-metre operator and founder member of the UK Six Metre Group, is now of a grand age of 91 and rather unwell at present, being cared for in a residential home. These places can be rather lonely, as we all know too well.

I know that he would be delighted to hear from his many friends, or anyone who has some six-metre stories to tell it would cheer him up tremendously. Anyone wishing to drop him a line should write to:

Major Ken Ellis, Whitegates Residential Home, Whitegates Close, Hythe, KENT, UK. Thanks, Chris, G3WOS

Microwaves

Doug VK4OE reports: *During the 'Spring Field Day' my operations were somewhat curtailed compared to my earlier plans (weather eventually became fine....Murphy must have been laughing!). I spent time only on 432 and 2403 MHz bands.*

The NSW and Queensland distance records for the 2.4 GHz band were sitting there waiting to be broken, and that's what Adrian VK2FZ/4 and I (operating portable in VK2) set out to do. Adrian had improved his system quite a lot recently, particularly involving a 1.2 metre dish.

So what did we achieve? Approximately 380 km from Adrian's QTH at Maleny about 100 km north of Brisbane, to my 'beside the highway' portable station near Ben Lomond between Armidale and Glen Innes in the New England region of NSW was our enjoyable best. There could have been more distance possible, but I didn't have the time to add another couple of hundred km to my driving total. Equipment: VK2FZ/4 20W to 1.2M dish + LNA; VK4OE/2 4W to 2 x 45 el loop yagis + LNA.

Bits and pieces

Joe Gelston VK7JG advises that after about eight years he has finally put all my antennas on the tower.

They are: 28 element loop yagi on 1296, fed with 7/8 Heliax; 48 element Jaybeam on 432; 15 element Quad driven yagi on 144; all have mast head pre-amps; 6 element yagi on 50 MHz.

During the VHF contest I worked across Bass Strait on all frequencies, but to my surprise I did not hear any VK5s on the air, however VK5VF/b on 144.450 MHz was audible for most of the Saturday morning.

End of an era

One cannot but help to feel a sense of nostalgia on the realisation that the December 1998 issue of Amateur Radio was the last to be produced by **Bill Roper VK3BR.**

Bill and I have had a long, comfortable and amicable arrangement in our common association with AR. When I first began writing these columns in 1969, Bill was a member of the Publications Committee, moving on to become the Editor in 1972 following the introduction of the Federal Body of the WIA. In 1976 he relinquished the position but returned in 1988 as General Manager and Secretary, effectively again at the helm of AR.

In 1992 he was recognised as the Publisher of AR, moving on to becoming Production Editor. When the Federal Office decided to contract out the production of AR, in 1996 Bill formed his company vk3br Communications Pty Ltd, successfully tendering for the production of AR. Drawing on his considerable computer skills he produced a new-look AR which has continued to the present, further aided by his computer typesetting commencing in May 1998.

During the past 29 years of supplying VHF/UHF information to AR, the method of presentation has seen changes. At first it was by double spaced typewritten material and this did not change until about 1990 when Bill accepted computer disks, first the 5.25 then 3.5-inch floppy disks. These were delivered by Australia Post.

In the last couple of years another step forward has been with the transmission of information by electronic mail (e-mail). Once a few incompatibility problems with programs were worked out, the passage of information to Bill has moved smoothly.

Time marches on and changes are made. Bill will be missed for his typesetting and formatting skills, but these will now be channelled into his other considerable interests within his company. I wish him every success in his new ventures, shared with and supported by his wife Wyn. Au revoir Bill.

Welcome to **Bob Harper VK4KNH** of Shadetree Publishing at Beerwah, Queensland, who now takes the publishing helm in concert with Bill Rice, the Editor. If the association with Bob Harper is as amicable and productive as it was with Bill Roper, then Amateur Radio magazine will continue to be a successful mouthpiece for the Wireless Institute of Australia in particular and amateur radio in general. Good luck Bob, I'm ready to work with you.

Closure

It has been relatively quiet on the six-metre scene but with summer now with us propagation should improve. It seems inevitable that as F2 rises then Es wanes. You are urged to support the Ross Hull Memorial Contest and the VHF Field Day, both running this month.

Two thoughts for the month:

1. Man's mind, stretched to a new idea, never goes back to its original dimensions, and
2. An apology is a good way to have the last word.

from *The Voice by the Lake.*

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Divisional News

Forward bias

VK1 Notes

Peter Kloppenburg VK1CPK
(02) 6231 1790

As Hugh mentioned in the December issue of A.R., I am taking over the responsibilities of editing this column.

As most of you realise, this is not an easy task to do. To gather interesting items of news that are relevant to members of the VK1 Division, you would have to be everywhere at once in the ACT.

However, you can help me to a certain extent by letting me know what is happening in your neighbourhood. By helping me, you help yourself. For example, you need a hand putting up an antenna, you are looking for a roller inductor for your newly designed antenna tuner, or you want to borrow a spectrum analyser, signal generator, or an accurate RF power meter.

All of these requirements can form part of this column and will be read by an amateur near you, or in the next suburb.

Being a member of the VK1, Council means that I am on top of the information flow between the various Divisions. This is very useful, as new ideas, proposals for change, and amateur identities move about in the world of amateur radio.

My position as divisional councillor demands that I consult with members of the Division about various issues as they emerge, resulting in a concensus of opinion. This can then be passed on, via the Federal Councillor, to the Federal Office. One of the ways to inform you will be via this column. Divisional members are therefore asked to comment about issues as they appear here.

Other subjects that I will mention here are the various divisional activities that occur in the ACT. As most of you know, the division maintains amateur communication systems within the territory. They are being looked after by volunteer workers who have a professional background in a particular field of communications, such as Packet, VHF/UHF repeaters, antenna arrays and microwave links. Our site at Mt Ginini is a case in point. It is there that a new eighteen-metre antenna mast is being put up presently by a combination of paid contractors and divisional members.

The result of this effort will be a wider and more reliable coverage for VHF/UHF in the territory and surrounding area.

Another area of interest is the membership. Generally, membership of the WIA is decreasing. VK1 Council believes that it is up to all of us to maintain and be active to increase membership in the VK1 Division. Of the 430 licensed radio amateurs in the territory, only 165 are members of the division.

However, you can help in a significant way!

Talk to your mates about the advantages of WIA membership. Give them an old copy of AR or bring them to one of our monthly meetings in the Griffin Centre. Alternatively, pick up a copy of our new brochure entitled: 'Services for Canberra Radio Amateurs' from any of the councillors, or at the meetings. Cheers, **pkloppen@dynamite.com.au**

QNews

VK4 Notes

Alistair Elrick VK4TL
alistair@powerup.com.au

Those tuned to the Brisbane VHF Groups 147 MHz repeater on Friday 6th of November, were treated to 'History in the Making'. A LIVE broadcast complete with a description of the new Qld Rail 'Very Fast Tilt Train', as it arrived and departed, Caboolture Rail station on the cities northern outskirts.

Noel VK4YNW set himself up to not only record but broadcast the sounds of this train, the *City of Maryborough*, on route from Rockhampton. The repeater was 'abuzz' that afternoon with Noel's exploits and much appreciated by all those 'on line'. It can be noted one of our visually impaired Hams, Noel had the railway staff a little perturbed by his 5/8 whip waving in close proximity to those overhead wires. Well done Noel.

A recent upgrading and clean-up visit was paid to the Queensland Digital Group VK4RZA site at Springbrook overlooking the beautiful Queensland Gold Coast. The garden team wielding lawn mowers and weed trimmers went about their allotted task with much gusto only to disturb a large black snake. They beat a hasty retreat and watched closely from a safe distance as the local resident departed for quieter surrounds.

During a follow up visit a comment was made that the rack of equipment being installed on this one site, contained more 'gear' than the entire QDG network of three years ago. Many thanks go to Neville VK4TX and Ken VK4KWM the technical driving forces behind a talented band of enthusiasts.

A Ham Radio Fun Day will take place in Brisbane at 11 AM on the third Sunday in February at the Koala Park in the Daisy Hill Environment Park. If you haven't been there, it is a great place for the family. Entirely free, but BYO. The donation of a gold coin per adult would be appreciated with money raised going to the Royal Flying Doctor Service. So, mark the 21st of February in your diary today.

Don't be like this recent comment. Martin Molloy on a VK National "drive time coast to coast" FM program actually mentioned Amateur Radio, but in what many would say is a negative way. QUOTE: "Ham Radio Operators... they're the people with friends in every city in the world. None in their own home town, but friends in every other city". So, get along to that Fun Day.

Due to a major storm hitting Brisbane the afternoon of Tuesday 13th October (beware that date) the WIAQ Council meeting was postponed for 1 week.

President Col VK4ACG, Councillor Laurie VK4BLE along with visitors Graham VK4BB and Alan VK4AAE still 'fronted up' to SES HQ in Brookes Street and almost ended up working the night for the Emergency Service. Antennas were blown down, a fig tree fell across SES vans and a large branch demolished the guttering and 240V mains entry point on the side of the building intended for the meeting.

Brian Beamish VK4BBS informs us that his daughter, Sue, has taken up a position as a teacher with the School of the Air. She and husband Alan will move to the town of Charleville in Southwest Queensland from which Sue will soon be heard teaching to her students in remote locations by HF radio. This could be considered as a case of 'Amateur harmonics on the School of the Air frequencies'.

If you are around the Hervey Bay area on holidays, drop in any Saturday morning from 9 AM to the clubrooms in Dayman Park at Urangan. Believe you me, you'll not be able to miss the club, what with the signage plus the antennas. VK4CHB is the club station and the Hervey Bay repeater is on 146.650 MHz.

The recently completed 21st Anniversary Gold Coast Hamfest was another successful

presentation by the Gold Coast Amateur Radio Club. Art VK4GO took many digital pictures that may be viewed via the Internet on the homepage of John VK4JLK. Have a look and make sure you 'sign the guest book'. Point your browser to:

http://www/winshop.com.au/vk4jlk.htm

As the summer storm season is upon us, it is prudent to keep an eye on where the lightning strikes are coming from and prepare your shack in anticipation. A service from the Queensland power authority, Energex, is creating a lot of interest among Amateurs in the South East Queensland region and helps to do just that.

Access the up to date report on impending storms including lightning strikes, on the Internet. On the site, click the blue button on the left side and a get 2-hourly picture of the strikes within areas of the SouthEast corner. Early enough warning to disconnect those antennas. Point your browser to http://bastion.energex.com.au/strike/

VK5/VK8 Notes

Let me commence my notes for this year by wishing one and all the very best for a Happy and Prosperous New Year. I also wish you good health as such an important item governing so much of what we do.

As one year ends so another begins. Going back over past events may seem to serve no practical purpose; however, it is in fact incumbent upon us to learn from the lessons of the past.

Even so, looking towards the future is also a necessity if we are not to stagnate. There are some aspects of VK5 Division activities, which should be borne in mind. These could place us into a good position with regard to achievement in this New Year.

First of all comes the high likelihood of a new venue for our Divisional Headquarters. Our hope is that this, together with other activities, will result in an upsurge of activity within the Division. I will deal with this in greater detail further on in these notes.

Another item of major importance, particularly for the future good of our organisation, is the possibility of a new constitution.

This will result from the work put in by many people, and to a large degree by the members of the Constitution Review Committee under the chairmanship of Jim McLachlan VK5NB.

We have an opportunity to produce a document that will act as a valuable guide for quite some years to come. It is important that it be the best of its kind, so I urge you to take an interest in this, study the copy of the proposed constitution which has been provided and make your contribution in the way of written comments as soon as possible. A special sheet was provided to enable you to do this, so please take the opportunity that offers now.

Thirdly, we will be able to press on with our recruiting campaign with the hope that we can bring many members back to the fold, and also impress on all that it is absolutely essential that we have effective representation to all areas of authority which impinge on our hobby.

I stress again that the WIA is the only body recognised by officialdom as representing Amateur Radio. It would seem pointless to try and re-invent the wheel, thus the best approach seems to be to strengthen our organisation in as many ways as possible.

A marked increase in membership can go a long way towards protecting our own interests. Please do all that you can to achieve such an improvement.

Given a satisfactory result from the above three areas mentioned, I feel that 1999 has the potential for being a very successful year.

Whilst on this subject I would like to point out that success is not only to be measured in numbers but even more importantly from the way we deal with each other. Selfishness will not allow a worthy contribution, whereas thoughtfulness and cooperation on the part of all will do wonders.

The Burley Griffin Building (BGB).

There are no doubts many do not listen to the weekly Sunday news broadcasts. For the benefit of such, I provide a brief update as to actions taken with regard to a solution for our headquarters location.

Negotiations with the West Torrens City Council and officers employed by that Council have been most amicable, with the Acting Mayor, Dr Reece Jennings and members of his Council being very supportive of the VK5 Division of the WIA.

So far it appears that the West Torrens Council may be inclined to retain ownership of the Burley Griffin Building as a "heritage" listed building on behalf of the general community. If this is so, that is the affair of that Council. This does not alter the situation in a major way as far as our occupancy is concerned.

If the building were retained by West Torrens it would certainly save a deal of work for the WIA by our remaining where we are. There are good things and bad things to be said regarding this venue which we have occupied for many years. Here though comes the big "HOWEVER!"

Members have shown a marked disinclination towards the BGB as a meeting place for various reasons. A survey of the membership just a few years ago indicated this in no uncertain terms. There appear to be no reason why this situation would have changed. There are also other matters, particularly costs, to be considered in connection with continued occupancy of the BGB.

A review of the situation took place when the Property Development Officer for the City of West Torrens suggested several alternative sites that appeared suitable for our organisation.

One was selected as most suitable for our purposes. This could result in our occupying a building suitable for housing VK5WI as well as providing general facilities for small meetings and office space. Adjacent to this building would also be a larger meeting venue that could be shared with 2 other community organisations. The services available would certainly meet our needs.

The buildings are in an area known as Keswick Park, bounded on the western side by Surrey Road and on the southern side by Everard Avenue.

The benefits to the VK5 Division of such a move include the availability of higher quality premises in all aspects and a reduction in costs for a headquarters facility. Following a comprehensive report to the November General Meeting the members present voted unanimously towards our continuing negotiations along the lines described.

As I write, we are still in the process of negotiation and discussion with all the other interested parties. I am hopeful of an early outcome that will be to our advantage. We could be in our new location some time in February or March.

This move will require some bodily assistance from members. I hope that all will help in the task to 'move and improve' our situation.

Meanwhile, if you have any queries on any of these matters you can contact me on the telephone number listed in the Adelaide "white pages" directory.

Meetings

The first General Meeting for 1999 will be held on Tuesday 26 January. I would assume that the venue will be the BGB, however, should there be any change from this you will be notified on the weekly news broadcasts.

Thank you

Finally, I, and the Division, thank all volunteers who provided the various services for both members and non-members throughout the year. There are too many to mention in detail, however, the thanks are certainly sincere and heartfelt.

Best 73 to you from Ian VK5QX
Divisional President.

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"QRM" from the Tasmanian Division

VK7 Notes

With the winding down of divisional activities for the year come the celebrations around our three branches.

Northwest Branch

The Christmas Dinner was held at Ulverstone on the 1st of December with 32 hams and ladies in attendance.

A feature of this night is the presentation of the "Joan Fudge Memorial Award" for outstanding service to the branch during the year. Joan was a much-loved amateur and secretary until cancer claimed her. The well-deserving recipient his year is Bob, VK7MGW.

Our Branch President, David, VK7ZDJ thanked all for their interest and work during the year. The Divisional President, Ron, VK7RN wished all the season's greetings from the State division.

Northern Branch

A fine night ensured a good roll-up at the barbecue at Myrtle Park on the 9th December. The Sterling Heights Vineyard sponsored the event, and this, together with the excellent fire-making of Alf, VK7LAW, contributed to the success of the night.

Southern Branch

It was disappointing that only nine attended the Southern branch breakup barbecue. That did not deter the hams who came from having a very good night.

"Sewing Circle" barbecue

This is always a very good event with hams coming from all over the state to the home of Bill, VK7AAW at Forcett, near Sorell. Those present paid tribute to two Silent Keys, Bob, VK7NBF, and Lloyd, VK7LC, both were part of the Tuesday night circle for many years.

We get good callbacks for our Divisional Broadcasts on 3.57, 7.090, and 14.130 MHz. at 9.30am summer time each Sunday morning. We welcome all from the northern island to this and also to our VK7 Internet site at wia.tasnet.net.au or, alternately as wia.org.au/vk7 – attached to the federal net-site. We are close to the 1000 mark with logged in visitors to this in the 6 months it has been operating.

The Tasmanian Division would like to wish the rest of Australia a very happy and fruitful New Year. This Institute year must be a year of strong growth and renewed commitment by every member to the goals of the W.I.A. to make it a really strong force in the field of Amateur Radio. The Tasmanian Division is pledged to these goals.

Ron Churcher, VK7RN, State President.

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REPEATER LINK

Will McGhie
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VK6UU@VK6BBR will@faroc.com.au

Feedback on 10kHz Channels

November's article of 10kHz channels for repeaters resulted in some feedback, most of which was to say no.

I hope the article was understood, as one comment I received indicated the article may have not been descriptive enough.

Concern at going to lower deviation standards was the query. To go to lower bandwidth is not the intention of the 10kHz proposal but rather to allow the use of more channels. All would remain the same except for the small frequency shift of channels ending in 025 and 075. Use could then be made of the additional channels at separation distances that would not normally cause co-channel interference.

10kHz spacing is overlapping use and hence interference if the channels are within propagation distances. But provided there is sufficient distance between repeaters they would not interfere with one another.

After all we have many repeaters on the same frequency around Australia and they don't interfere as long as they are far enough apart.

Fill up

One point that was made was that the number of 2 metre repeater channels would just see more repeaters, and in the end the number of channels would fill up and we would be right back where we are in some areas of Australia right now, overcrowded.

This is a good point.

In the short term if your repeater is having problems due to pagers above 147MHz and a move to the crowded segment below 147MHz is the only solution, then the availability of a few more repeater channels is an attractive thought.

However in the long term there are only a finite number of repeater systems that can be placed in the 2-metre band and tackling the problem needs some real solutions.

70cm

The solution most often mentioned is the move to 70cm.

We all appear to agree that 70cm is the way to go. But how often does discussion focus around establishing a new repeater system on 2 metres, with 70cm not even getting a mention. If it is mentioned, the age-old argument arises of not enough operators on the 70cm band to make use of the service, the age-old chicken and egg situation.

70cm repeaters must come first. Perhaps if your repeater system is having problem after problem with interference, a long term plan to change the system from 2 metres to 70cm needs to be discussed.

While on the subject of 70cm repeaters, they are much easier to put on air than 2 metre repeaters.

De-sense is less of a problem on 70cm due to the effective wider separation on 70cm between input and output. Percentage separation on 2 metres (600kHz) is about 0.4% and on 70cm (5MHz) about 1.1%, a considerable reduction in de-sense problems.

Added to this is the greatly reduced size of the duplexer. I often pick up UHF duplexers that operate with 5MHz separation for a cost as little as $10. Their size is a twentieth of the equivalent 2-metre duplexer.

More Discussion Please

I would like to receive more discussion on the 10kHz proposal.

Input came via FTAC from one division to say 'no way'. I just hope the considered opinion from that division was from a wide number of people and not just one or two. It is so easy to appear to speak for all, or if the idea is not liked by a particular person, to present the concept in a negative way. The old half full or half empty situation.

VK6 HF Net

To stray slightly off the track in regards to repeater subjects for a moment, I find less and less time for repeater projects due to WIA commitments.

VK6 WIA General meetings have been suspended due to lack of attendance. Less than ten members were attending meetings and most of those in attendance were the same people.

At some meetings Councillors outnumbered members.

To replace this limited contact between Council and members at general meetings an

REPEATER LINK

continues

on air net is being trialed. The net takes place on a two-metre repeater and via a gateway onto 80 metres. Whatever is said on two metres is automatically re-transmitted on to 80 metres and vice versa.

Technically the idea has worked well with seamless operation between the two bands. All amateurs can hear all conversations no matter which band they are using. Net control is from 2 metres.

Input from members and non-members is picking up and Council is gaining some of the thoughts of the members in a wider circle than could be gained from the same numbers attending the general meetings.

The question arises as to whether this attended gateway is legal? With considerable interest from some amateurs in VK6 to have the HF gateway concept legalised, the VK6 WIA 2-metre – 80-metre gateway is an interesting experiment that has given a taste of this type of operation.

I must emphasise that although the gateway is automatic; it is attended by an amateur, (myself). However if the concerted effort to see HF gateways legalised is successful, then this type of experimentation could provide us with another type of amateur communication.

For the moment combining 2-metres and 80-metres on the VK6 WIA net is proving most successful, allowing country members in particular to have direct access to the VK6 Council.

One item that has been discussed on the VK6 net, and in other places as well, is the value of *Amateur Radio* magazine.

Opinions seem to be poles apart. Two areas of opinion are, waste of money, nothing in it worth more than a few minutes of reading; through to, without the magazine there would be no WIA. Your elected WIA representatives have to decide what is the best for your organisation, based in part on such diverse opinion. A difficult task to say the least.

One other point that was made on the net was that the WIA should be doing more important things rather than some of the things it is doing now. Criticism that I'm sure could be applied to almost any organisation.

However, the question is, are members prepared to put in more precise detail in what they believe the WIA should be concentrating on, and in particular help with the preparation of the documentation of these items.

If you have an opinion you would like to see promoted, do some of the keyboard work and present your ideas to the WIA through your local Council. It is easy to say they should be doing this and that, but detailed thoughts are what are required.

More on the VK6 WIA Nets and their success or failure in the future, and in particular the legalisation of HF Gateways. Agenda and postal motions have been prepared and circulated to formalise the WIA position on HF gateways. Their outcome will be reported in a future article.

The VK6 WIA Council will continue to gauge the usefulness of such nets over a period of time. Minutes are taken of the on air nets which are circulated on packet and the VK6 WIA Web page.

Further off the subject

If I may stray further off the subject of voice repeaters for another moment, the Federal WIA is doing more and more of its communications between office bearers such as Federal Councillors and the Federal Executive, using email.

Much had been said about making the move to email but that progress was slow. However as soon as the Federal Office came on line with an email address, Federal WIA matters quickly took advantage of the fast correspondence. All WIA divisions are on email plus all but one Federal Councillor.

The results so far have been exceptional with all matter of Federal WIA matters being discussed between WIA Office holders. The result of this innovative communications is a quicker and easier response to Federal WIA business.

Also well done to many of the Federal and divisional office holders who carry the cost of their email accounts to the benefit of the WIA and Amateur Radio in general.

"It Costs Too Much"

I have thoughts of a brief article in the future to inform amateurs about the cost of being a WIA office-bearer.

It may surprise you just how much it costs individuals to hold WIA positions. It is not always possible to define these costs so they can be covered by WIA funds. Some Amateurs complain about the cost of being a WIA member while others devote their time and money to hold WIA positions.

As a simple example, to send this article for publication before the use of email cost me a dollar. That adds up to $12 a year. Now it is emailed, the cost has come down to a local phone call times twelve per year.

Petty costs for sure but the comment "*it costs too much to be a member of the WIA*" needs further thought, as the costs to many Amateurs who hold WIA positions are considerably higher. They do the work and foot the bill as well.

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Annual Index for 1998

Bill Roper VK3BR,
Bill Rice VK3ABP
& Bob Harper VK4KNH

A large number of dedicated Amateurs submitted articles in 1998 for the benefit of all WIA members and, no doubt, for others who read AR gratis.

The range of topics shows the many varied interests of radio amateurs.

It is pleasing to see a large number of technical articles, including experimentation and project building.

If your collection is incomplete, you can call the Federal Office for a back issue, if available, or for a photocopy of that missing article. Details on page 1.

Technical or General articles are always welcome and should be addressed to the Editor c/o WIA Federal Office PO Box 2175 Caulfield Junction Victoria 3161.

A writing guide for *Amateur Radio* can be found on page 52 of this edition of *Amateur Radio* or by sending a stamped, self addressed envelope the Federal Office at the address above.

You may also contact AR via the email address armag@hotkey.net.au.

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Ionospheric Update	Evan Jarman VK3ANI	Feb	51
Receivers			
A Junk Box Regenerative Receiver	Peter Parker VK1PK	Jun	15
A Six to Two Receiving Converter	Peter Parker VK1PK	Apr	08
An SSB Product Detector for "Boat Anchor" Receivers	Morris Odell VK3DOC	Mar	07
Magellan GPS-2000XL Mk 3 Receiver	Richard Murnane VK2SKY	Nov	07
Simple VHF Receiver	Technical Abstracts	Jun	18
Repeaters and Beacons			
16 Digit DTMF Decoder	Repeater Link	Oct	18
40 m SSB Gateway	Repeater Link	Apr	11
Misbehaving EPIRB	Ron Graham VK4BRG	Mar	16
Remote Mute for a Voice Repeater	Repeater Link	Mar	14
The Gateway	Repeater Link	Jul	39
VHF/UHF Signal Generator	Repeater Link	Jan	17
Test Equipment			
A Dip Oscillator, Crystal Checker and Signal Source	Drew Diamond VK3XU	Apr	04
A Sensitive Field Strength Indicator	Drew Diamond VK3XU	Aug	06
A Sensitive HF Indicating Wavemeter	Drew Diamond VK3XU	Dec	11
An LF Antenna Bridge	Lloyd Butler VK5BR	Oct	06
Audio Oscillator and Function Generator	Paul Clutter VK2SPC	May	08
Build a Cheap RF Capacitance Bridge	Ron Sanders VK2WB	Apr	26
Combined 2 m and 70 cm Signal Source	Technical Abstracts	Nov	13
Power Attenuator	Technical Abstracts	Jul	15
Simple Output Indicator	Technical Abstracts	Sep	16
Simple Transmission Monitor and Interference Sniffer	Drew Diamond VK3XU	Feb	19
Time Domain Reflectometer	Technical Abstracts	Jun	19
VHF-UHF Tuneable Signal Generator Using a 72-74 MHz VFO	Will McGhie VK6UU	Apr	10
VHF/UHF Signal Generator	Repeater Link	Jan	17
Transceivers			
ALIVO Fun Transceiver	Technical Abstracts	Aug	16
FM828 on 29 MHz	Will McGhie VK6UU	Feb	47
Icom IC-706MkII HF + 50 MHz + 144 MHz All Mode	Ron Fisher VK3OM	Oct	09
Icom IC-746 HF + 6 m + 2 m 100 W Transceiver (Review)	Ron Fisher VK3OM	Jun	06
Icom IC-T8A Tri-Band Handheld Transceiver (Review)	Paul McMahon VK3DIP	Aug	10
Sidetone for the "TCF" Transceiver	Bob Kemp VK3CAY	Mar	06
Yaesu FT-847 12 Band All mode transceiver (Review)	Ron Fisher VK3OM	Sep	06
Yaseu VX-1R Miniature Handheld Transceiver (Review)	Paul McMahon VK3DIP	Jun	11
Transmitters			
Fonefist' SSB/CW Transmitter for 80 Metres	Drew Diamond VK3XU	Nov	10
Further Thoughts on the Garran	Peter Parker VK1PK	Mar	20
SSB by the Fourth Method?	Phil Rice VK3BHR	Feb	15
The DSB40 - A 40 Metre DSB Transceiver	Peter Parker VK1PK	Jul	09

The complete index from 1989 to December 1998 is available on disk, in text and ".dbf" format from the Federal Office for $10

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CONTESTS

Ian Godsill VK3DID
Federal Contests Coordinator
25 Monaco Street, Mentone Vic. 3194 vk3did@eudoramail.com

Greetings to all Contestants! My wife and I are in the throes of moving, so as we wish you all a very happy New Year and good contesting, ours will certainly be a busy one.

Contest Calendar 1999

January

2/3 ARRL RTTY Roundup

8-10 Japan International DX CW (Low Band) (Dec 98)

9/10 Summer VHF/UHF Field Day Contest (Dec 98)

16/17 HA DX CW Contest

22-24 CQ WW 160 m DX Contest (Dec 98)

30/31 REF (France) CW DX Contest (Dec 98)

30/31 UBA (Belgium) SSB DX Contest

February

13 Asia - Pacific CW Sprint (Jan 99)

13/14 PACC DX Contest (CW/Phone) (Jan 99)

19-21 CQ 160 Metres SSB Contest (Dec 98)

20/21 ARRL DX CW Contest (Jan 99)

27/28 RSGB 7 MHz CW Contest (Jan 99)

27/28 Jock White Memorial Field Day (CW/Phone) (Jan 99)

27/28 UBA (Belgium) CW DX Contest

27/28 REF (France) SSB DX Contest (Dec 98)

28 High Speed Club CW Contest (Jan 99)

March

6/7 ARRL DX SSB Contest (Jan 99)

13/14 Commonwealth Contest (CW) (Feb 99)

20/21 WIA John Moyle Field Day

20/21 DARC HF SSTV Contest

20/21 Bermuda Contest

20/21 Russian DX Contest(CW/Phone)

27/28 CQ WPX SSB Contest

Thanks this month to :

VK4EMM, VK3APN, OH2KI & JE1CKA

PLEASE NOTE: The Ross Hull Contest will finish on the **11th January 1999.**

Matters Requiring Attention

I must claim space this month to raise some issues, which need discussion.

1. There is a growing trend towards electronic log submission. This is now quite widespread in Europe and America and there are logging programs that do quite a lot of the work for the contester — CT and TR are names that come to mind.

   We may not all have these programs, nevertheless many of us use a computer to type our log sheets. Rather than printing and posting, why not save to disk and post, or e-mail?

   ASCII seems to be the preferred format and as far as I know, modern computers still can save in text format. Binary files are definitely taboo. Please consider this in 1999 and where possible make use of this form of log submission. To assist this, I would ask all contest managers to be prepared to accept logs on disk and via e-mail.

2. Of great concern worldwide lately is the definition of "Single Operator". Traditionally this is someone who does all the work himself. More recently the use of Packet nets and the Internet have produced a system whereby those connected to these nets can be made aware of potential new contacts. This is called "spotting". If you have ever had a sudden pile-up and just as suddenly it disappears, then you have probably been spotted by someone else.

   All this is certainly making good use of modern technology. The problem arises in that this method can be seen as the operator having assistance, therefore (a) he is no longer a single but multi-operator and (b) he may be in breach of working within "the spirit of the contest".

   Some managers have created a Single Operator Assisted category, so the traditional Single Operator can still have his time-honoured methods and the modern techno-contester can use his aids.

   The debate is around (a) are these aids giving that operator an advantage that normal SOs do not have, and (b) is he still a single or multi-operator?

   I would certainly appreciate your comments, even though the worldwide community of contesters very much favours the traditional system. Please send any thoughts to me at the WIA Federal Office above, or via e-mail. If sufficient replies are received, I shall publish a digest in March or April.

3. Of similar vein is the issue being canvassed in Europe, viz. the use of CW-to-ASCII Converters. Again the feeling is that the narrow filters can put up signals that may otherwise be difficult or impossible to hear, therefore the operator is receiving assistance and an advantage. The feeling in Region 1 is that these devices are to be outlawed entirely. Again, any comments welcome.

4. There are several well-established VK/ZL contests each year and again I ask for your support of these. The RD is the most readily recognisable, but there are others — field days, Ross Hull VHF, Novice, 160 Metres, VK/ZL/Oceania, all under very capable managers who devote many hours to checking logs, compiling results and organising certificates.

   Please aim to support these events. It is a cliche to say, "they are fun", but it is true. Your abilities get tested, your equipment gets a workout in a way that it usually doesn't and I can assure you that the DX stations are delighted to hear VKs and ZLs. Great is the lamenting in the Northern Hemisphere that VKs are "notoriously silent on CW".

   Like Amateur Radio in general, no one knows the future of contests; so please, whilst there is time, support your national contests and be an ambassador for our country. (Many of you reading this are contesters, so please get your friends involved.)

5. There is an agreement that use of the 80 metres DX Window for contest purposes is not acceptable. I ask all contesters in VK to abide by this.

Result SARTG WW RTTY Contest 1998

(Posn\call\cat\score)

92 VK6GOM SOAllBand 259675

Asia - Pacific Sprint

CW: 1230z - 1430z Sat. 13 Feb.
SSB: 1230z - 1430z Sat. 12 Jun.
CW: 1230z -1430z Sat. 16 Oct.

Object is for stations in the Asia-Pacific region to work as many stations worldwide as possible within two hours.

Bands are 40/20 m only. Suggested frequencies are (CW) 7015-7040 and 14030-14050 and (SSB) 7060-7080 and 14250–14280 kHz.

Category is single operator single tx only.

Output power is limited to 150 w.

Exchange RS(T)serial number and count one point per valid QSO. The called station (usually the CQer) must QSY at least 1 kHz after a CW QSO, or 6 kHz after an SSB QSO. The multiplier is the total number of prefixes, per WPX rules (ie each prefix once only, not once per band).

Final score equals valid QSOs X multiplier.

Post logs to: James Brookes, 26 Jalan Asas, Singapore 678787, postmarked within seven days, or e-mail an ASCII version to jamesb@pacific.net.sg within 72 hours.

Rules and results will be distributed by automated info-server. Send e-mail to: info-contest@ne.nal.go.jp containing #get ap-sprint.rule

ARRL DX Contest

CW: 0000z Sat 2400z Sun 20/21 February.
SSB: 0000z Sat - 2400z Sun 6/7 March

Object is to work as many W/VE amateurs as possible.

Bands 160 – 10 m (no WARC).

Single operator categories are: single band; all band; all band QRP (max 5w o/p), all band low power (max 150 w o/p) and all band unrestricted. Single band entrants who make contacts on other bands should submit logs for checking purposes; spotting nets not permitted. Single Operator Assisted where spotting nets are permitted.

Multi-operator categories are: single tx, two tx and unlimited. In the single and two tx categories, once a transmitter has begun operation on a band, it must remain on that band for at least 10 minutes. Listening time counts as operating time. See QST or http://www.arrl.org for more comprehensive rules governing multi-operator entries.

Exchange RS(T) and a three-digit number indicating approximate output power. W/VE stations will send RS(T) and state/province.

Score three points per W/VE QSO.

The **multiplier** is the sum of US states and District of Colombia (DC) (except KH6/KL7), NB (VE1), NS (VE1), PEI (VE1 or VY2), PQ (VE2), ON (VE3), MB (VE4), SK (VE5), AB (VE6), BC (VE7), NWT (VE8), YUK (VY1), NF (VO1) and LAB (VO2) worked to a maximum of 62 per band.

Final score equals total QSO points X multiplier. Entries with more than 500 QSOs must include a crosscheck (dupe) sheet.

Entries must be **postmarked** within 30 days after the last contest, or they will be classed as check logs (no exceptions!).

Mark the envelope CW or Phone and **send** to ARRL Contest Branch, 225 Main Street, Newington, CT 06111, USA.

ASCII logs on disc are welcome in lieu of a paper log. An official **summary sheet** (or reasonable facsimile) with a signed declaration, is required with all entries. Alternatively, logs can be forwarded via Internet to <contest@arrl.org> or anonymous ftp to <ftp@arrl.org>. Include your summary sheet file, making sure it contains all pertinent information. Multi-operator entries must list all operators.

Certificates will be awarded to the top scoring stations in each country and category, and plaques to the top worldwide and continental stations.

PACC CW/SSB DX Contest

1200z Sat - 1200z Sun, 13/14 February

Object of this contest is to work as many Dutch stations as possible on 160 - 10 m (no WARC) and no SSB QSOs on 160 m.

Categories are single operator, multi-operator and SWL. Stations may be worked only once per band, regardless of mode, except on 160 m where CW contacts only are eligible.

Exchange RS(T) plus serial number. Dutch stations will send RS(T) plus two-letter province code (DR FL FR GD GR LB NB NH OV UT ZH ZL)

Score one point per Dutch QSO. Contacts must be confirmed with TU, OK or QSL.

Final score equals total QSO points X total Dutch provinces worked from each band (max 72).

Mail logs with summary sheet and declaration by 31 March to: Hans Timmerman PA3EBT, Nieuweweg 21, 4031 MN Ingen, Netherlands.

E-mail logs to <pa3ebt@wxs.nl> Certificates will be awarded to the top-scoring stations in each category and country, with second and third places where justified.

RSGB 7 MHz CW Contest

1500z Sat to 0900z Sun, 27/28 Feb.

Object of this contest is to contact as many British Isles stations as possible on **band** 40 m CW only. Categories: Single operator; multi-operator single tx; SWL.

Exchange RST plus serial number starting at 001; UK stations will add their county code.

Oceania stations **score** 30 points per QSO and **final score** is total QSO points times the number of UK counties worked.

Include a **summary sheet** showing all standard details, plus a checklist if more than 80 QSOs are made.

Send logs to arrive by 31 March to: RSGB HF Contests Committee, c/o S V Knowles G3UFY, 77 Bensham Manor Road, Thornton Heath, Surrey, CR7 7AF, England. Airmail is recommended, as late logs may be treated as check logs.

Certificates will be awarded to the leading entrant in each overseas section.

High Speed Club CW Contest

0900 - 1100z and 1500z - 700z
Sunday, 28 February
Sunday, 7 November

Held twice yearly, these contests are organised by the High Speed CW Club.

Bands are 80 - 10 m (no WARC). **Categories** are HSC members; non-members; QRP 5w; and SWL.

Exchange RST + HSC number or serial number.

Score one point per QSO with own continent and three points for DX. Stations may be worked once per band and period. Each DXCC country per band counts as a multiplier. **Final score** equals points X multiplier.

Send logs within six weeks to: Frank Steinke DL8WAA, PO Box 1188, D-56238 Selters, Germany.

Jock White National Field Day

(NZART) (CW/Phone)

0200 -1100z and 1700 -0000z Sat 27 February & 0000 -0200z Sun 28 February

This contest is open to portable ZL sations and also to overseas stations. VKs work ZL field day stations only.

Bands 80 and 40 m.

Sections include: CW; Phone; mixed mode; 80 m only; "natural" power; QRP max 5 w o/p. Cross-mode contacts are not permitted.

Exchange RS(T) plus serial number. ZLs will add their branch number. This contest is divided into 18 one-hour periods, changing over on the hour. Stations can be contacted once per hourly period, per mode, per band. Note that two consecutive QSOs with the same station are not permitted under the following circumstances, unless five minutes have elapsed: (a) when changing modes but staying on same band; (b) at the end of one period and the start of the next.

Score five points per CW QSO and three points per Phone QSO.

Multiply by the total number of branches worked on Phone and CW. Multipliers are counted separately on 80 m and 40 m, and on Phone and CW, ie the same multiplier can be counted up to four times. The **summary sheet** should show all usual details, plus a summary of the QSOs and multipliers per band and mode.

Send logs to: S. White ZL2ST, 19 Rossport Street, Johnsonville, Wellington, New Zealand to arrive by 25 March 1999.

Thanks and 73 de Ian VK3DID

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AWARDS

John Kelleher VK3DP
Federal Awards Officer
4 Brook Crescent, Box Hill South, Vic 3128 (03) 9889 8393

Another year has passed, with little pleasure for the avid DXer. Sad, isn't it. So the powers to be invented places like Scarborough Reef, Pratas Island, Temotu Province, The Marquesas and Austral Islands.

Southern Sudan was deleted, and Czechoslovakia decided to split in two.

The final outcome of it all is that the total countries has been increased to 331.

I find that I still have only one VK1 in my active files. Why is this so ?

CZECH REPUBLIC

General requirements. Fee for all awards is 10 IRC or US$5.00. Endorsement fee is 2 IRC or US$1.00 and indicate number and issue date of basic award. Send cards unless GCR from national level Society has confirmed possession. List for P75P must contain locations of listed stations.

Apply to : Czech Radio Club, Awards Manager, PO Box 69, 113 27 Praha 1, Czech Republic.

S-6-S

Work and confirm contacts with at least one station located in each of the six continents since January 1st, 1950. All CW, all Phone, all RTTY, and all SSTV. Endorsement stickers for basic certificate are available for 80, 40, 20, 15 and 10 Metres.

P-75-P Worked 75 Zones.

Work and confirm contacts with at least one station located in 50 different ITU Zones since 1st January 1960. Endorsement for 60 or 70 zones. SWL OK.

100-CS Worked 100 Czech Stations.

Work and confirm contacts with at least 100 different OK/OL stations since 1st January, 1993.

Issued for mixed mode, all CW, all Phone, all 160 Metres, all VHF or SWL. Endorsement available for each additional 100 up to 500.

OKDX AWARD

Contact at least 40 different Czech counties during the annual OK/OM DX Contest held every year, during the second week in November.

OMDX AWARD

Contact at least 15 different Slovak counties during the contest as above.

Logs for the last two awards go to the Contest Sponsor, Karel Karmasin, OK2FD Gen Svobody 636, 674 01 Trebic, Czech Republic.

RSGB Series

(In this case, the IARU Region 1 Award).

Contact the required number of stations in countries whose National Societies are members of the Region 1 Division of the IARU. This award may be endorsed for a single mode or band, including 2 or 6 Metres, or for contacts made by satellite. The three classes are :

Class 1 All countries on the current list.
Class 2 60 member countries.
Class 3 40 member countries.

MEMBERS OF IARU REGION 1 ARE :

3A	Monaco
3B	Mauritius
3DA	Swaziland
4X/Z	Israel
5B	Cyprus
5H	Tanzania
5N	Nigeria
5X	Uganda
5Z	Kenya
6W	Senegal
7P	Lesotho
7X	Algeria
9A	Croatia
9G	Ghana
9H	Malta
9J	Zambia
9L	Sierra Leone
A2	Botswana
A4	Oman
A7	Qatar
A9	Bahrain
C3	Andorra
C5	The Gambia
CN	Morocco
CT	Portugal (including CU and CT3)
DL	Germany
EA	Spain
EI	Ireland
EL	Liberia
ES	Estonia
EU/EW	Belarus
EY	Tadjikistan
EZ	Turkmenistan
F	France (including TK)
G	UK (including GI, GJ, GM, GU & GW)
HA	Hungary
HB9	Switzerland
HB0	Liechtenstein
I	Italy (including IS0)
J2	Djibouti
JT	Mongolia
JY	Jordan
LA	Norway
LX	Luxembourg
LY	Lithuania
LZ	Bulgaria
OD	Lebanon
OE	Austria
OH	Finland (including OH0 and OJ0)
OK	Czech Republic
OM	Slovakia
ON	Belgium
OY	Faroe Islands
OZ	Denmark
PA	Netherlands
R	Russian Federation
S5	Slovenia
SM	Sweden
SP	Poland
SU	Egypt
SV	Greece
T7	San Marino
T9	Bosnia and Herzegovina
TA	Turkey
TF	Iceland
TR	Gabon
TU	Ivory Coast
TZ	Mali
UR	Ukraine
V5	Namibia
XT	Birkina Fasso
YI	Iraq
YK	Syria
YL	Latvia
YO	Romania
YU	Yugoslavia
Z2	Zimbabwe
Z3	Macedonia
ZA	Albania
ZB2	Gibraltar
ZS	South Africa.

Fees for this award for non-RSGB members are 9 IRC or US$6.00.

Apply to :
The Awards Manager,
Fred Hanscombe
Sandholm,
Bridge End Road,
Red Lodge,
Bury St. Edmonds,
Suffolk,
England TP28 8LQ

HF Predictions

by Evan Jarman VK3ANI
34 Alandale Court, Blackburn Vic 3130

January 1999
T index: 106

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.

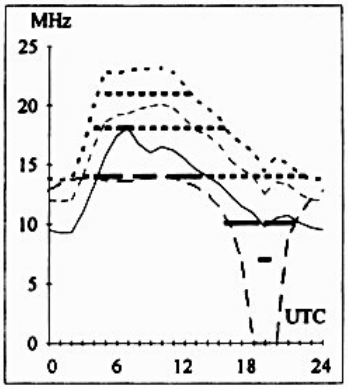
These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Useable Frequency
- E-layer Maximum Useable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

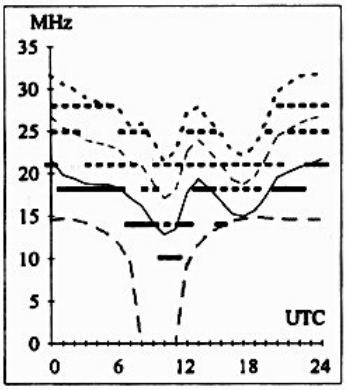
Shown hourly are the highest frequency amateur bands in ranges between these key frequencies; when useable. The path, propagation mode and Australian terminal bearing are also given for each circuit.

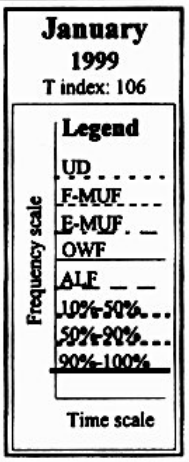
These predictions were made with the Ionospheric Prediction Service program: ASAPS version 4.

Adelaide-Capetown 226
Second 4F5-14 4E0 Short 10155 km

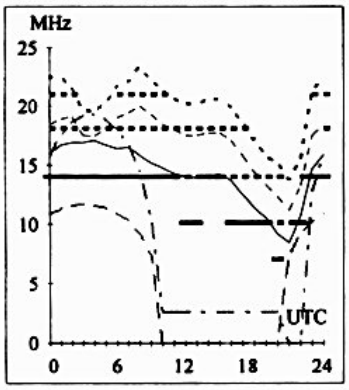


Brisbane-Lima 122
First F 0-5 Short 13056 km

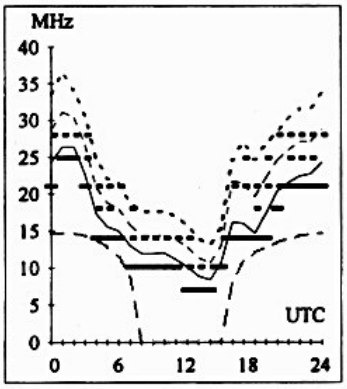




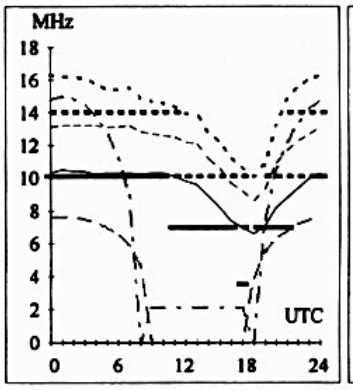
Adelaide-Manila 338
Second 3F10-20 3E1 Short 5813 km



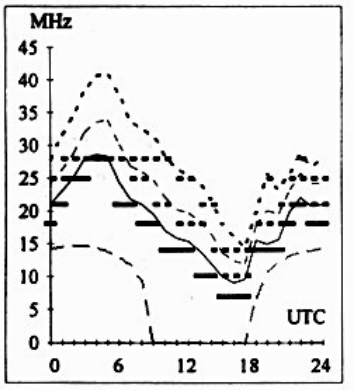
Brisbane-Los Angeles 59
Second 4F3-8 4E0 Short 11564 km



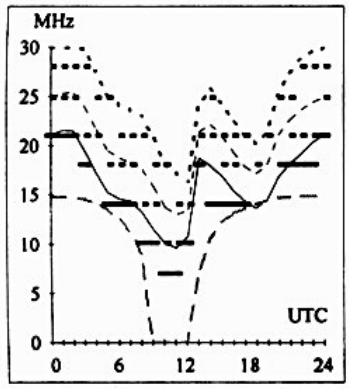
Canberra-Auckland 102
Second 2F21-31 2E6 Short 2300 km



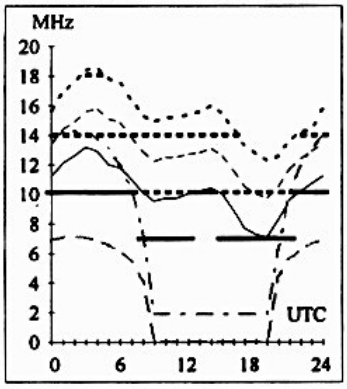
Darwin-Honolulu 65
First 3F3-10 3E0 Short 8635 km



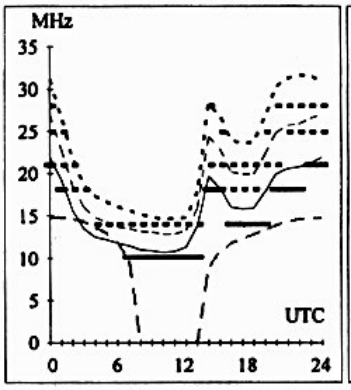
Adelaide-Miami 95
First F 0-5 Short 16175 km



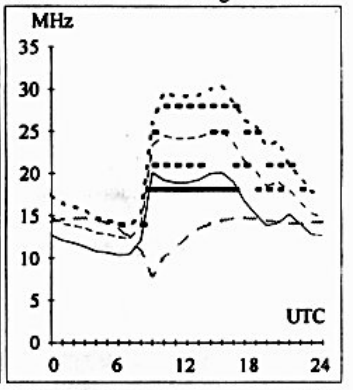
Brisbane-Port Moresby 342
Second 2F23-25 2E7 Short 2090 km



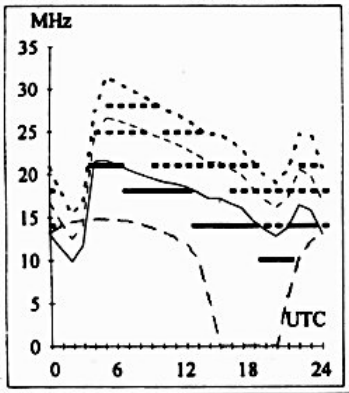
Canberra-New York 68
First F 0-5 Short 16217 km



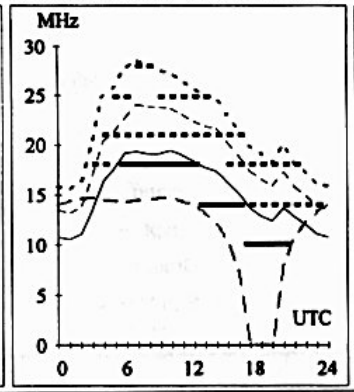
Darwin-London 145
First F 0-5 Long 26171 km



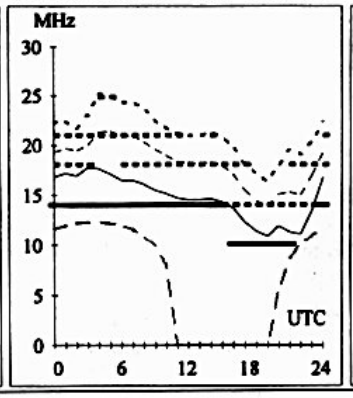
Adelaide-Tel Aviv 291
First F 0-5 Short 13125 km



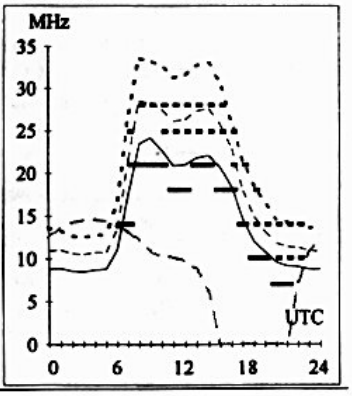
Brisbane-Pretoria 230
Second 4F3-10 4E0 Short 11655 km



Canberra-Singapore 301
Second 3F9-17 3E0 Short 6212 km

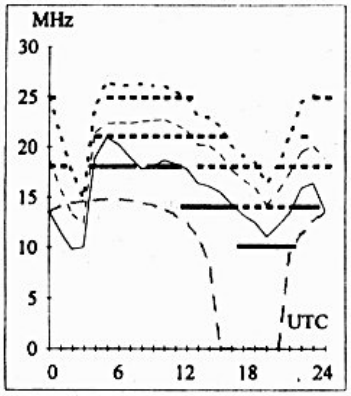


Darwin-London 325
First F 0-5 Short 13853 km

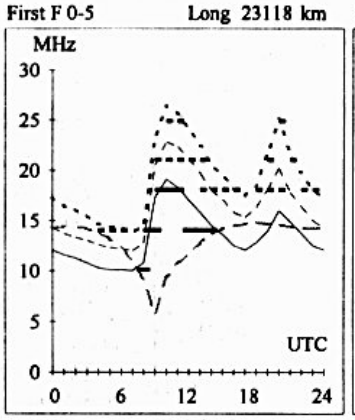


HF Predictions

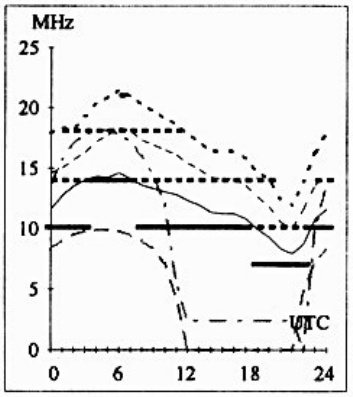
Hobart-Cairo 278
First F 0-5 Short 14263 km



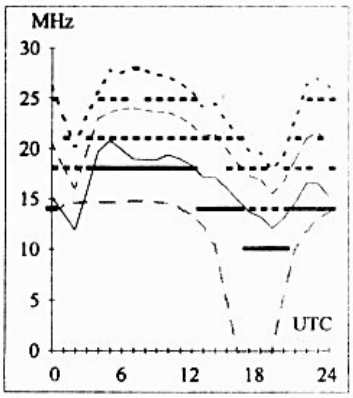
Melbourne-London 131
First F 0-5 Long 23118 km



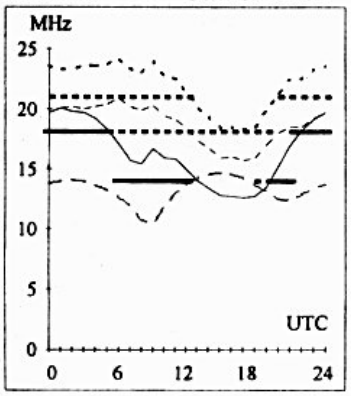
Perth-Jakarta 340
Second 2F15-25 2E3 Short 3017 km



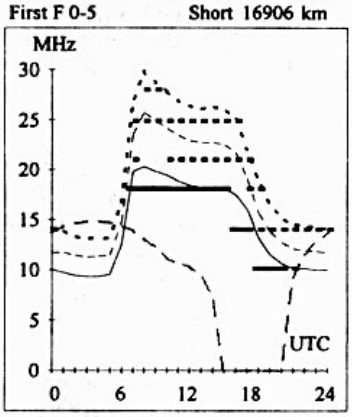
Sydney-Nairobi 255
First F 0-5 Short 12148 km



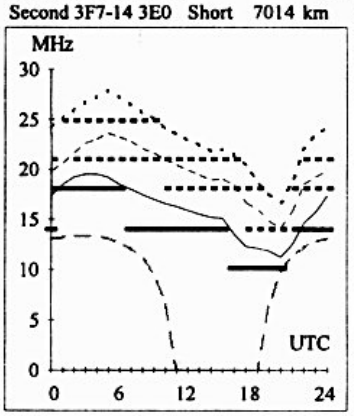
Hobart-Rio de Janeiro 169
First F 0-5 Short 12620 km



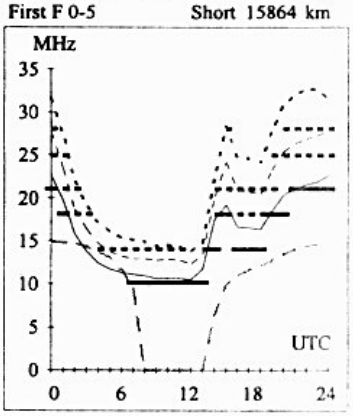
Melbourne-London 311
First F 0-5 Short 16906 km



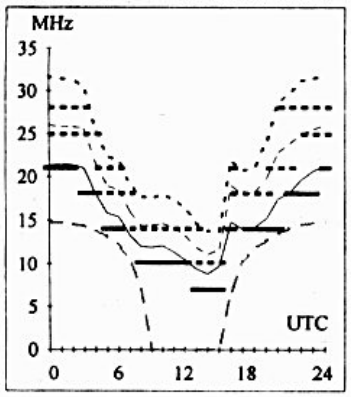
Perth-Kiribati 72
Second 3F7-14 3E0 Short 7014 km



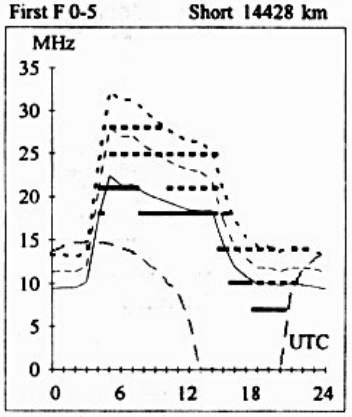
Sydney-Ottawa 58
First F 0-5 Short 15864 km



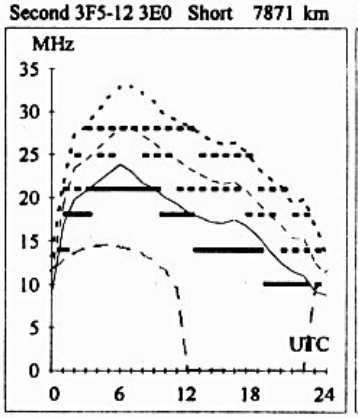
Hobart-San Francisco 61
First F 0-5 Short 12764 km



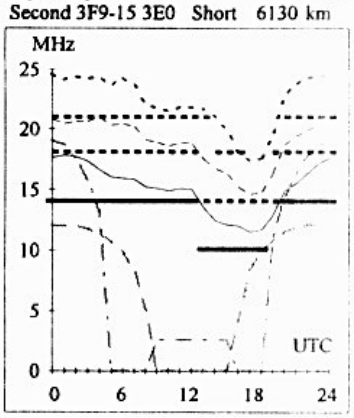
Melbourne-Moscow 316
First F 0-5 Short 14428 km



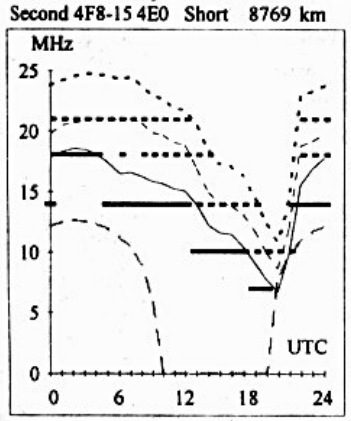
Perth-New Delhi 325
Second 3F5-12 3E0 Short 7871 km



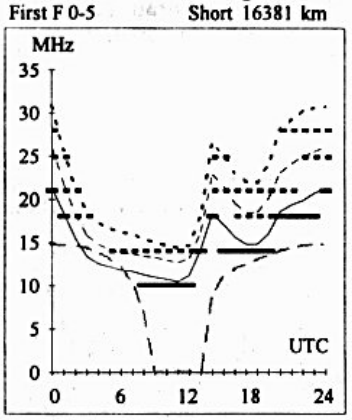
Sydney-Tahiti 89
Second 3F9-15 3E0 Short 6130 km



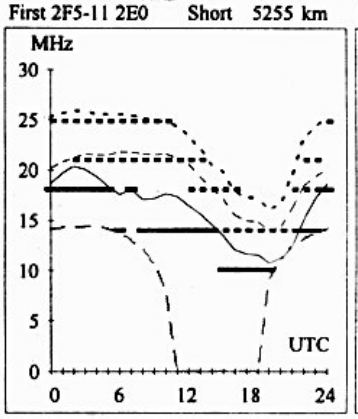
Hobart-Tokyo 354
Second 4F8-15 4E0 Short 8769 km



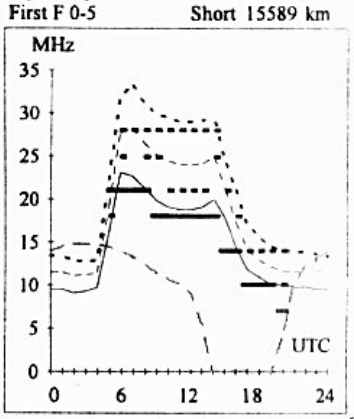
Melbourne-Washington 75
First F 0-5 Short 16381 km



Perth-Wellington 119
First 2F5-11 2E0 Short 5255 km



Sydney-Warsaw 313
First F 0-5 Short 15589 km



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AWARDS

continued

GERMANY

The Eternal Cities Award.

This diploma may be earned by amateurs and SWL's for contacting Cities which were established before the time of Christ.

The requirements are 50 points for Europe and Asia , all others 25.

A city founded 200 years , or two centuries BC = 2 points : 300 years = 3 points etc. All bands and modes. No date limitations. GCR list and fee of DM12 to :

Victor Ganin UU5JFY,
c/o Hermann Warnecke,
Feuerwehrstr. 11 , D-28857
Syke- Ristedt, Germany.

The most ancient cities of the world and their award values :

City		Value
Athens	SV	15
Bologna	I	6
Koln	DL	1
Feodosia	UR	6
Jerusalem	4X	2
Lyon	F	1
Malaga	EA	11
Paris	F	1
Rome	I	8
Tunis	3V	10
Eriwan	EK	8
Ankara	TA	7
Barcelona	EA	3
Damascus	YK	11
Geneva	HB	1
Kerch	UR	6
Marseille	F	6
Nicosia	5B	7
Peking	BY	15
Samarkand	UM	4
Tashkent	UM	1
Zaragoza	EA	27
Beirut	OD	17
Belgrade	YU	5
Delhi	VU	10
Istanbul	TA	7
Lisbon	CT	2
Milan	I	5
Piraeus	SV	15
Plovdiv	LZ	4
Sparta	SV	7
Valencia	EA	2

Best Regards

es 73, de VK3DP

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OVER TO YOU

Like a duct over water

As a non-amateur reader of your magazine I noted with interest the report from VK2EI Neil Sandford in November's issue.

I once worked with Neil in Geraldton and would like to say hello. More to the point, I note Neil's work at 10 and 24 GHz. I am currently undertaking a PhD in Engineering at the University of Canberra and the topic of my research is the characterisation of microwave propagation in the evaporation duct over warm tropical oceans.

While that sounds like a mouthful it isn't really.

As most readers will know, atmospheric ducts or layers can trap the RF energy often leading to anomalous propagation, DXing. In the maritime environment these ducts or elevated layers can also cause radar blind spots.

There are recorded instances where another ship was visible to the eye, but invisible to radar. This is not a welcome event in a crowded, foggy shipping lane or in instances where the unseen object is an anti-ship missile.

I would be very interested to hear from WIA members who are experienced in RF ducting at 10 GHz, over land or sea.

I am particularly looking for records of anomalous propagation in ducts or layers, received signal strengths and any atmospheric readings or observations taken at the time. As the research progresses I would also be happy to share it with WIA members.

If anyone is interested I could write a short article on the planned experimental set-ups to be used at Lucinda in north Queensland and in Darwin.

Andrew Kerans
PO Box 3060
Belconnen ACT 2617

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All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents

Silent Key
Frank Hill VK2HQ

It is with regret that we announce the death of Frank Talbot Hill, VK2HQ.

Frank became a silent key on Saturday 28th November in Milton Hospital.

Frank was born in Adelaide on January 15 1912. He was educated at Scotch College Adelaide and, on leaving school, studied radio engineering and joined broadcasting station 5AD as an engineer.

He became a licensed amateur in about 1927 and at the outbreak of WWII was called into the RAAF as a radio operator. He rose to the rank of FltLieutenant and saw service in Australia and New Guinea. Whilst in the service he met and married his wife Jean who was a telegraphist stationed at Brisbane WT Station.

After the war, Frank held a senior position with Hallstroms Pty Ltd, the refrigerator firm, and remained with them until his retirement when he moved to Milton on the south coast of NSW.

He was always very active in Amateur Radio and a great ambassador, encouraging young (and older) people to join our ranks.

He was a foundation member of the Mid South Coast Amateur Radio Club and has been patron of that club for many years. Until his death he played an active role in this club and will be sadly missed.

David VK2CX

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Due to space demands, obituaries should be no longer than 200 words

HAMADS

- Hamads may be submitted on the form on the reverse side of the Amateur Radio address flysheet. Please use your latest flysheet where possible.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the form on the back of the Amateur Radio address flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment offered for sale should be included in the Hamad.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

  Postal: Newsletters Unlimited, 29 Tanner Street, Richmond, 3121
  Fax: 03 9428 4242
  E-mail: newsl@webtime.com.au

FOR SALE NSW

● **YAESU FT-890 All mode HF Transceiver 100W 160-10m Allband Rx** Brand new condition Never used on Tx demo only on Rx $1500 No offers. **YAESU FT-26 2m handheld txcvr dricell battery pack spk/mic** dc power lead VGC $220 Chris VK2YMW QTHR 02 9487 2764

● **Transmitting Valves 3-500** $200, Q-04 (equiv to 4-400) $60. Tom, VK2OE (02) 9482 1565 evenings

WANTED NSW

● **Drake L7 amplifier, GAP Voyager antenna,** HF-6 antenna. Tom, VK2OE 02 9482 1565 evenings

● **Old unloved receivers for restoration.** I don't mind if they are working or not working parts circuits, love the old valve sets. Used for listening. Heavy old sets very welcome. Will pay $$ if necessary. So clean up the shack and I will help you have more room. Come on and give me a hernia! contact John 02 9533 6261 WIA L 21068

FOR SALE SA

● **HP7475A Plotter** exc condn. A3 size. 6 pen carousel. With serial cable, orig manual and approx 30 spare pens. $150 ONO. Phone John 08 8226 8084 (W) or 08 8278 1296 (H) S/N 2807V-86242

● **Power supply PS 430 Kenwood** $120 Antenna tuning unit AT230 Kenwood $110 Both units in top condition QTHR 08 9446 1568

WANTED SA

● **Multi 800D 2mtr FM transv** in any condition, (but not squashed. Hi) Made by Fukuyama (FDK) Circa 1978 08 8346 7042 VK5MX QTHR Callbook

WANTED QLD

● **Hy-Gain TH3 MK3 or TH5 Yagi;** Heavy duty antenna rotator prefer EMOTATOR, CREATE, KENPRO, TELEX; Kenwood PS50 power supply; Kenwood or Henry linear amplifier HF; John VK4SKY QTHR 0417 410 503 PO Box 1166 Coolangatta QLD 4225

● **Kenwood TS 830 S** owners and service manual; VFO 230; 6146B Tubes; Any repair or modifications information; Rotator Kenpro, Emotator or similar; Hy Gain TH3 or TH3 VNR Yagi antenna. John VK4SKY QTHR 0417 410 503 PO Box 1166 Coolangatta QLD 4225

FOR SALE TAS

● **YAESU FT990 HF Xcvr Gen** cov rec built in P/supp deluxe Xcvr $1795 inc Boxes etc **YAESU SP5 Speaker** $130 **Kenwood TS 500S** exc cond unmarked boxes inc cw filter $395. **Kenwood MC50 base mic** $90 above all in as new cond. Contact Allen VK7AN 03 6327 1171 Mobile 0417 354 410

FOR SALE VIC

● **Kenwood PG-3G 20 A DC noise filter** new in box $30 sm-220 monitorscope w/BS-8 Panadaptor $250 Icom IC-730 HF TXRX, & IC901 10/6/2/70cm FM & extras. $offers for either? Damien VK3RX 03 5427 3121

● **Nally tower wind-up tilt over** with Kenpro rotator and 6 metre 5 element beam. Buyer to dismantle. VCC $450-ONO Bob VK3ZRY 03 95784961

● **YAESU FT26 HH., charger**, manual $150. Dowkey type 60 relay with ext.dc contacts $60. Melabs 2-2.5GHZ circulator $50. Mitsubishi module M57713 $60. RLC coaxial switch type n connect. 12GHZ $50. Dick Smith variable power supply 3-15v at 25 amp $200. Roger VK3XRS 03 5152 1163

● **General purpose noise remover and filter** model NRF-7 $75 Alf Chandler VK3LC QTHR

● **PWR SUPPLY I.C.-PS.15** in carton with manual, 20 amp, mint cond. $150. TXCVR YAESU FT-75 B with quick charge D/C adaptor NC_15 $100. ATU Brand new MFJ-945E in carton etc $100. PWR SUPPLY Brand new DSE 1 amp multi-volt 3-12 V at 1 amp, fully regulated $25. MAX VK3GMM 03 5985 2671 all hours.

● **YAESU FT757GX HF Xcvr VGC** $550 ONO Dick Smith D-3800 3-15V 25amp DC Power supply EC. $200 Graeme VK3GPT 5962 6098

WANTED VIC

● **YAESU 7-B manual** with circuit diagrams. Photocopy OK. Will pay all costs. Graeme VK3GPT 5062 6098

● **New YAESU or similar type dual time clock** for amateur time zone reference. VK3YJ QTHR 03 9315 9387

MISCELLANEOUS

● **The WIA QSL Collection** (now Federal) requires **QSLs.** All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel 03 9728 5350

● **If you got your licence before 1973** you are invited to join the Radio Amateurs Old Timers Club. A $2.50 joining fee plus $5.00 per year gets you two interesting Journals plus good fellowship. Arthur Evans VK3VQ or Milton Crompton VK3MN can supply application forms. Both are QTHR in any Call Book.

TRADE ADS

● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Assoc TV Service, Hobart: Truscotts Electronic World, Melbourne and Mildura: Alpha Tango Products, Perth: Haven Electronics, Nowra: and WIA Equipment Supplies, Adelaide.

● **WEATHER FAX programs** for IBM XT/ATs *** "RADFAXZ" $35.00, is a high resolution short-wave weather fax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" $45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" $75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3.00 postage. ONLY from M. Delahunty, 42 Villers St, New Farm QLD 4005. Ph 07 358 2785.

Prevent Pirates

make sure you sell your transmitting equipment to a *licensed* Amateur Operator

WIA Division Directory

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers		News Broadcasts	1998 Fees
VK1 ACT Division GPO Box 600 Canberra ACT 2601	President Secretary Treasurer	Hugh Blemings John Woolner Les Davey	VK1YYZ VK1ET VK1LD	3.570 MHz LSB, 146.950 MHz FM each Sunday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc newsgroup*, and on the VK1 Home Page *http://www.vk1.wia.ampr.org*	(F) $72.00 (G) (S) $58.00 (X) $44.00
VK2 NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124) Phone 02 9689 2417 Freecall 1800 817 644 Fax 02 9633 1525	President Secretary Treasurer (Office hours Mon-Fri 11.00-14.00) Web: *http://ozemail.com.au/~vk2wi/* e-mail address: *vk2wi@ozemail.com.au* Packet BBS: VK2WI on 144.850 MHz	Michael Corbin Eric Fossey Eric Van De Weyer	VK2YC VK2EFY VK2KUR	From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.170, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1273.500 (* morning only) with relays to some of 18.120, 21.170, 581.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.	(F) $89.00 (G) (S) $56.00 (X) $41.00
VK3 Victorian Division 40G Victory Boulevard Ashburton VIC 3147 Phone 03 9885 9261 Fax 03 9885 9298	President Secretary Treasurer (Office hours Tue & Thur 0830-1530) e-mail address: *vk3wi@rint.com.au* Web: *http://www.tbsa.com.au/~wiavic/*	Jim Linton Barry Wilton Rob Halley	VK3PC VK3XV VK3NC	VK3BWI broadcasts on the 1st Sunday of the month, starts 10.30 am. Primary frequencies, 3.615 LSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3WI on Victorian packet BBS and WIA VIC Web Site.	(F) $75.00 (G) (S) $61.00 (X) $47.00
VK4 Queensland Division GPO Box 638 Brisbane QLD 4001 Phone 07 3221 9377	President Secretary Treasurer e-mail: *secretary@wiaq.powerup.com.au* Web: *http://www.wiaq.powerup.com.au*	Colin Gladstone Peter Harding Allstair Elrick	VK4ACG VK4JPH VK4FTL	1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 21.175 MHz, 28.400 MHz SSB, 29.220 MHz FM, 53.725 MHz FM, 147.000 MHz FM, 438.500 MHz (Brisbane only), and regional VHF/UHF repeaters at 0900 hrs EAST Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.	(F) $74.00 (G) (S) $60.00 (X) $46.00
VK5 South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone 08 8352 3428 Fax 08 8264 0463	President Secretary Treasurer Web: *http://www.vk5wia.ampr.org/*	Ian Hunt Graham Wiseman Joe Burford	VK5QX VK5EU VK5UJ	1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.	(F) $75.00 (G) (S) $61.00 (X) $47.00
VK6 West Australian Division PO Box 10 West Perth WA 6872 Phone 08 9351 8873	President Secretary Treasurer Web: *http://www.faroc.com.au/~vk6wia/* e-mail: *vk6wia@faroc.com.au*	Cliff Bastin Christine Bastin Bruce Hedland-ThomasVK6OO	VK6LZ VK6ZLZ	146.700 FM(R), 438.525 FM(R), 29.120 FM at 0930 and 1900 hrs Sundays from Perth, relayed (morning only) on 1.825, 3.560, 3.582 (Busselton), 7.075, 14.116 (North), 14.175 (East), 21.185, 50.150; (morning and evening) 146.900(R) Mt William (Bunbury), 147.00(R) Katanning, 147.200(R) Cataby, 147.250(R) Mt Saddleback (Boddington), and 147.350(R) Busselton; (evening only) 1.865, 3.564 MHz.	(F) $62.00 (G) (S) $50.00 (X) $34.00
VK7 Tasmanian Division 24 Targett Street Scamander TAS 7250 Phone 03 6372 5305	President Secretary Treasurer Web: *http://www.wia.tasnet.net* e-mail: *vk7kpg@hamnet.hotnet.com.au*	Ron Churcher Paul Godden John Klop	VK7RN VK7KPG VK7KCC	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.	(F) $74.00 (G) (S) $60.00
VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz). Note: All times are local. All frequencies MHz.					

Membership Grades
Full (F) Pensioner (G)
Needy (G) Student (S)
Non receipt of AR (X)

Three-year membership available to (F) (G) (X) grades at fee x 3 times.

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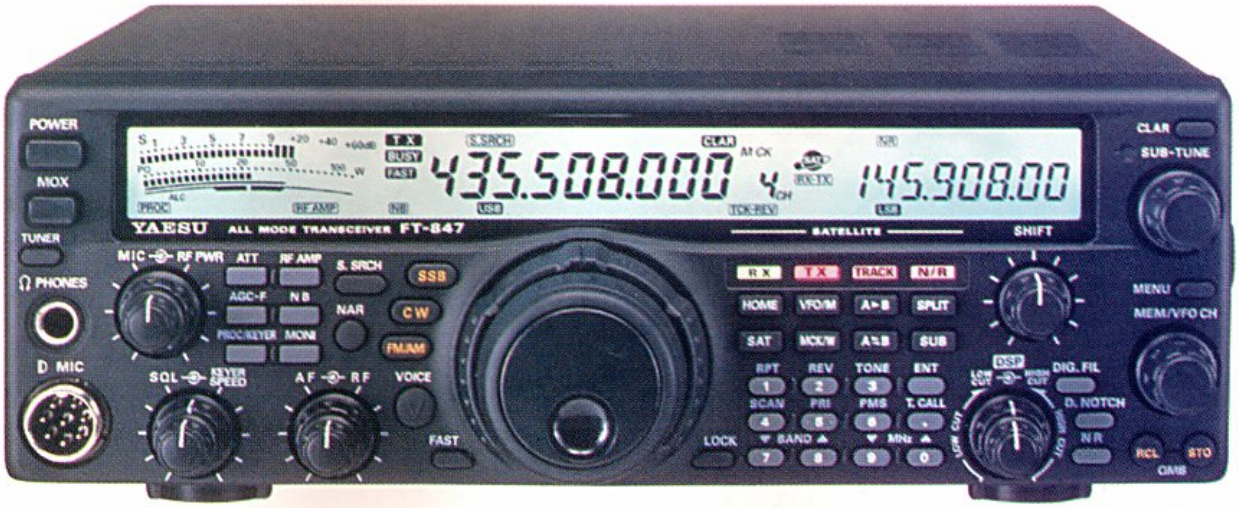
All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

FT-847 EARTH STATION



Only one transceiver gives you all-mode operation on the HF, 6m, 2m, and 70cm bands with full satellite capability...

the new Yaesu FT-847 "Earth Station"

Ready for action on SSB, CW, AM, FM and Digital modes, the FT-847's compact size makes it ideal for a variety of portable/mobile applications as well as for serious base station operation. You get a solid 100W output on the HF and 6m bands, 50W output on both 2m and 70cm, dual fan cooling and a rugged diecast chassis. Plus, the ultra-quiet HEMT receive pre-amps on 2m and 70cm contribute to the FT-847's industry best sensitivity figures. Advanced Digital Signal Processing (DSP) circuitry enhances received signal/noise ratios for easier copy of signals under marginal conditions through the use of 16 selectable noise reduction algorithms, while the Bandpass and Auto-notch filters aid the IF based Shift and Noise Blanker circuits in reducing interference on crowded bands.

The FT-847 is ready for satellite operation, with crossband full duplex operation, normal and inverted VFO tracking of the satellite uplink/downlink, as well as 12 special satellite memories with alpha-numeric name tags. Also provided is a low-noise Direct Digital Synthesiser (DDS) that provides tuning steps as small as 0.1Hz, plus there's an adjustable DSP bandpass filter as narrow as 25Hz for exceptional weak-signal CW performance. You can also install optional Collins® mechanical filters in both the transmit and receive chain for enhanced SSB operation, as well as a 500Hz Collins® filter in the receiver side for CW. An RF-style speech processor with adjustable frequency shift voice tailoring is also provided to add punch to your SSB transmissions.

The FT-847 is ready for data modes, with a rear panel Data In/Out socket and a Packet socket for 1200/9600 baud VHF/UHF operation. Other features include extended receiver coverage (37-76, 108-174, and 420-512MHz), a high-speed computer control interface, 10 key keypad for band/frequency entry, and a Shuttle-Jog tuning ring for fast QSY. Also included are encode/decode CTCSS and DCS operation, selectable channelised steps for FM operation, an iambic CW keyer, FM narrow/wide modes for 29MHz use, and a large LCD screen with adjustable backlighting.

Each transceiver is supplied with a hand-mic, DC power lead and a comprehensive instruction manual. Call us for a copy of Yaesu's 6 page colour brochure to learn more about this incredible value "Earth Station" transceiver.

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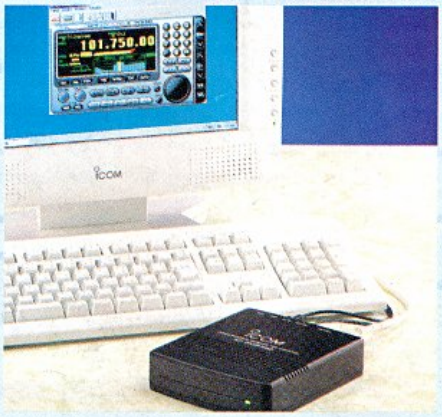
746 ***A tri-bander packed with power.*** Powerful and versatile to satisfy all your base station needs, HF + 6m + 2m band coverage, 100 W of output power on all bands, DSP functions standard, large multi-function LCD keeps you totally informed and makes the 746 so easy to use.

207H ***Switch to two bands for a single band price...*** In-dash versatility, VHF/UHF capabilities (one band at a time) via a band switching system, superb clarity on either operating channel, easily detachable front panel, even a connection to a packet modem supporting speeds of up to 9600bps.



Q7A ***A mini unit with maxi performance.*** 2m/70cm transceiver/wide band receiver just 8.6 cms high,wide band receive from 30 to 1300 MHz in FM/WFM/AM modes, simple operation with easy band switching, automatic squelch, crystal clear audio.

PCR100 ***Cruise the airwaves with your computer.*** Turns your PC into a sophisticated 0.5 - 1300 MHz receiver (FM/WFM/AM modes) with plug'n play installation. Multi function control panel, wide frequency coverage, and unlimited memory channels.

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